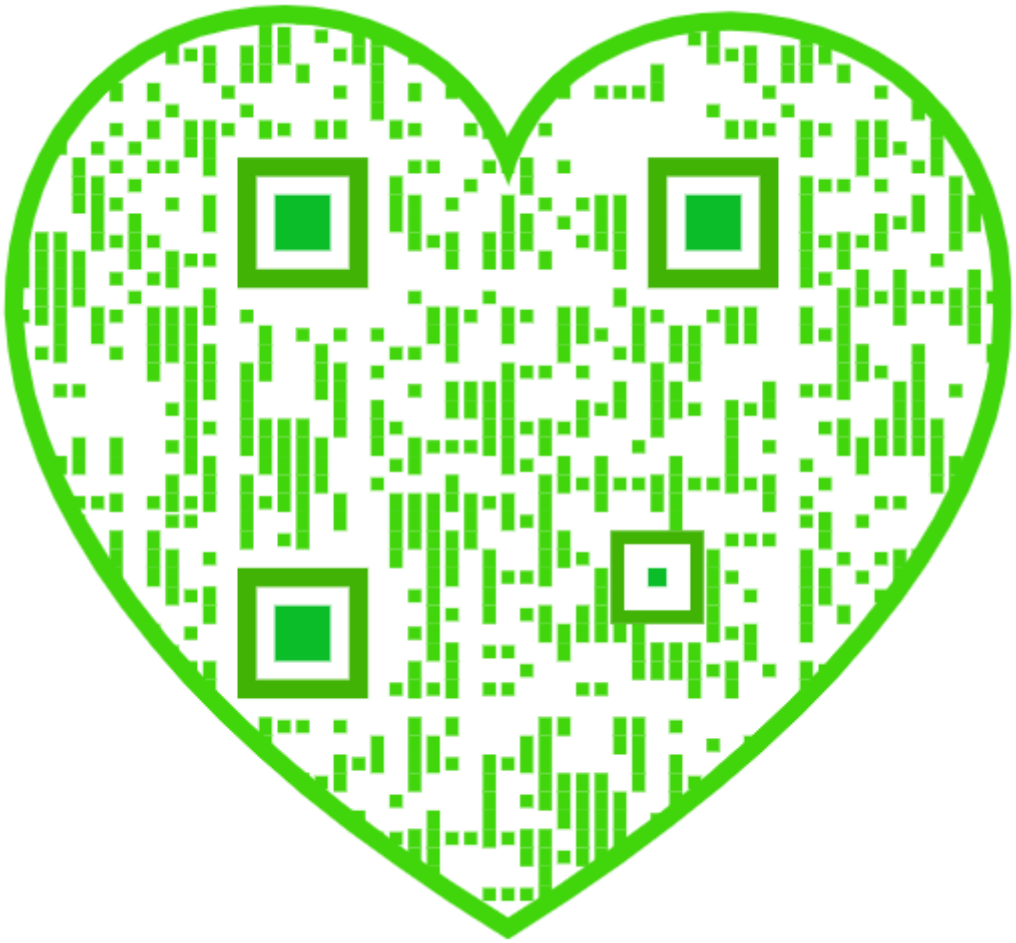
F
127
.C5C5
2d.set



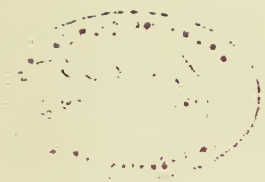
LIBRARY OF CONGRESS
1800

CAYUGA COUNTY

HISTORICAL SOCIETY

COLLECTIONS

NUMBER FIVE.



COLLECTIONS

OF

CAYUGA COUNTY

HISTORICAL SOCIETY

AUBURN, N. Y.

NUMBER FIVE.

LIBRARY OF CONGRESS
170135
JUN 8 1887
SMITHSONIAN DEPOSIT

1887.

TENTH

ANNUAL ADDRESS.

SEWERS:

ANCIENT AND MODERN,

WITH APPENDIX AND ILLUSTRATIONS.

"HOBBIES,"

AND SOME WHICH WE HAVE RIDDEN IN 1886.

AUBURN, N. Y.
1887.

TWO HUNDRED AND FIFTY COPIES.

NUMBER 188.

KNAPP, PECK & THOMSON,
Book, Job and Commercial Printers,
AUBURN, N. Y.

CONTENTS.

PAGE.

OFFICERS CAYUGA COUNTY HISTORICAL SOCIETY. - - - - - VI

TENTH ANNUAL ADDRESS, - - - - - IX

BY WM. H. SEWARD.

SEWERS: ANCIENT AND MODERN, - - - - - - - - - 5

BY CYRENUS WHEELER, JR.

ILLUSTRATIONS BY FRANK R. RATHBUN.

"HOBBIES"—AND SOME WE HAVE RIDDEN IN 1886, - - - 107

BY WM. H. SEWARD.

OFFICERS.

President,
WILLIAM H. SEWARD.

Vice-President,
BENJAMIN B. SNOW.

Corresponding Secretary,
FRANK W. RICHARDSON.

Recording Secretary,
DAVID M. DUNNING.

Treasurer,
NELSON B. ELDRED.

Librarian,
JOHN H. OSBORNE.

Historical Secretary,
D. WARREN ADAMS.

TRUSTEES.

JOHN H. OSBORNE,
LEWIS E. LYON,
D. WARREN ADAMS,
JOHN N. KNAPP,
DAVID M. DUNNING,
JAMES SEYMOUR, JR.,
NELSON B. ELDRED,
FREDERICK I. ALLEN,
CYRENUS WHEELER, JR.,
CHARLES M. BAKER,
FRANK W. RICHARDSON,
JOHN W. O'BRIEN,
WILLIS J. BEECHER, D. D.

COMMITTEES.

ON PAPERS.—Lewis E. Lyon, Willis J. Beecher, Frank W. Richardson, Charles M. Baker, Thomas M. Osborne.

EXECUTIVE.—John H. Osborne, C. Wheeler, Jr., Willis J. Beecher.

FINANCE.—D. M. Dunning, John N. Knapp, John W. O'Brien.

MEMBERSHIP.—James Seymour, Jr., Nelson B. Eldred, Frederick I. Allen.

ROOM.—H. D. Woodruff, D. W. Adams, W. H. Meaker.

TENTH ANNUAL ADDRESS,

BY WM. H. SEWARD.

FEBRUARY 8, 1887.

ADDRESS OF THE PRESIDENT.

We enter to-night upon our eleventh year, and it is with pleasure that we find the Cayuga County Historical Society in a most prosperous condition. Our roll of active members exceeds in number that of any previous time. Local interest in our work has never been greater than it is to-day, and the store of valuable and instructive matter which we have already accumulated continues to increase as the society becomes older. The historical papers and addresses delivered before the association within the past ten years, now number between sixty and seventy, embracing a wide range in the local history of our city and county, marking their growth, prosperity or depression from the time of the arrival of that rather mythical individual, "the first settler" down to the present day.

Younger members have joined us of late, and their vigorous influence is already felt in the work of building up and sustaining our organization. "Old men for council; young men for action," is a familiar saying, and if it be true, may have its application here, except that none of us would be quite willing to be classed with the "old men."

The number of ladies (I should much prefer to say women if custom would tolerate it, because I deem the latter the most dignified title) joining our society, or attending its meetings, has considerably increased within the year, adding their inspiring presence and encouragement to our work, and it is earnestly hoped that before long some of them may be induced to contribute to our literary papers.

Burke says: "In history a great volume is unrolled for our

instruction, drawing the materials of the future for the past errors and infirmities of mankind."

Certain it is that history never stops, and if we carry out well the objects of our society, we shall find plenty to do, not only in searching out the most interesting facts of past local history before they shall fade out of memory of those now living, but also of faithfully recording the important incidents of the ever passing present, as they occur from day to day, before they too have to give place to others, rapidly crowding upon the scene. These may well be compared to the dissolving views of the magic lantern, for hardly do we become familiar with one picture of the living panorama, when it begins to grow dim, and before we are aware of it a new one has taken its place; so quickly indeed does this transformation take place in every day life, that we often find it difficult to recall the previous occurrence in all its details, unless it had at the time some special bearing upon our own affairs. It is therefore to preserve these true life pictures, that we aim, so far as they appear of interest, or value to ourselves, our children, and posterity.

Our historical collection is open to all in the community who desire to seek it, for reference or inspection, and our publication of papers and information is only limited by the meagre means of the association.

During the past year, the society has listened to eight original papers, or addresses, each having been especially prepared for the occasion.

Our publications for the year have been as follows: "Historical collection No. 3" containing "Jesuit missions among the Senecas," by Rev. Charles Hawley, with notes and maps by Gen. John S. Clark. The sixth and seventh annual addresses of President Hawley. Abstract of proceedings of the annual meetings of the society, 1878 to 1884. By-laws and list of officers, and members of the society in 1884.

Also "Historical Society Collection No. 4," containing proceedings of a special meeting of the society occasioned by the death of our late president, Dr. Hawley, with resolutions and short addresses by several of its members. Prof. Willis J. Beecher's "Memorial Address" upon the life and character of Dr. Hawley, delivered before the society at the First Presbyterian church of Auburn.

Also the annual address of your president before the society in 1886. 250 copies of each of these publications were distributed to our members and to other historical societies.

The work of selecting and obtaining the various historical papers for delivery before the society, is in charge of its Committee on papers and addresses, composed during the last year of Lewis E. Lyon, Prof. Willis J. Beecher, Dennis R. Alward, Frank W. Richardson, and Charles N. Baker. Their work is perhaps the most laborious of any in charge of the committees, and is often not a little discouraging, not because they do not find subjects of value, but because it is most difficult in an active business community like ours, where each one is engrossed with his own affairs, to persuade those best informed, to undertake the work of committing their knowledge and thoughts to paper. Many good promises are obtained, but when it becomes actually necessary to begin work, it often looks so like a mountain that it is put off from time to time, and in many cases never done at all. I think I am within bounds in saying that our paper committee suggest and solicit ten subjects for each one which is really obtained. When we are first spoken to about preparing a paper, it frequently seems easy enough, and perhaps a thing which we would really enjoy doing, but when we come to sit down and face the task, unless the mind is trained to the work (or has a natural gift that way) some of us at least are like the man who once said to himself, "I will write a great history of the world, from the Flood down to the American Revolution," but when he began, he found so much

of it that he became discouraged and after several efforts, each time shortening the period to be covered by his great history, he gave up in despair, and wrote instead an account of a town meeting in his own village, saying that he guessed that would be all he was able to do. But as I wish to encourage rather than to discourage future offers, let me say:

> The work dear friend, once well begun
> May oft be counted near half done.

Our librarian has reported to you that he has received various interesting relics and volumes, during the past year, many of which are quite valuable in a historical point of view. He has also re-arranged our growing library which now contains some 400 bound volumes and a large number of historical pamphlets; while this department is by no means complete, it nevertheless has a good start, and already embraces much valuable matter.

Our treasurer reports the society in fair financial condition. He has in the main received a cheerful response to his call for the moderate annual due required to support the organization, and although he cannot report that the society is growing dangerously rich, he can at least assert that the association is out of debt, and owes nothing but good will. It is to be regretted that the question of money has to enter into our work at all, but there seems to be no way of avoiding it, as no one appears ever to have devised a satisfactory plan whereby Historical Societies could run without it.

Our two secretaries, while they make no formal report to-night, have nevertheless each performed most acceptably the duties of their respective offices, and now I come to think of it they should have our especial sympathy, as they are the ones who usually first encounter the active newspaper reporters who want to know "just what was, or is to be done," and that in the briefest possible manner. As nothing which we do is "brief," it is not always easy to comply with the request.

Our meetings during the past year, have all, with one exception, been held in our own rooms, and were seven in number.

They have been well attended, both by our own members and citizens not members, who were interested in the particular subject of the evening, the audiences seldom dropping below fifty.

The action of the society at its last meeting in establishing the new office of Historical Secretary, and the subsequent appointment by the board of trustees of our good friend and coworker, D. W. Adams, to fill the important position, will it is hoped, result in much benefit to the society.

The success of our association rests mainly upon two things, first, the individual interest and intelligent efforts of enough of our citizens to sustain the organization, and second, upon public encouragement enough to demonstrate to those engaged in the work, that it is appreciated. Money will not buy success here, but hearty co-operation will. I am happy to be able to say that in the year just passed we have enjoyed both of these very essental elements, and have reason to be grateful for it, although it must also be confessed that there have been times since our organization when the society could with profit to its work, have received better support than it did.

Having spoken of the past work of our association, allow me to call the attention of our board of trustees to two or three matters which it might be well for them to consider with reference to the coming year.

First.—Would it not be well to collect and publish in some substantial form, the several excellent papers of Mr. B. B. Snow upon current events? They cover a period of unusual interest in our city, and contain more information of its doings than any other series of papers will ever be likely to do again, besides they are bright interesting reading, and would be of benefit to those consulting our library.

Second.—Would it not be desirable to make some arrangement whereby our rooms could be kept open for our members (and such visitors as they choose to bring with them), at least

during the winter season, or if impracticable to keep them open all the time, then say for two or three evenings each week? This would certainly promote greater social intercourse among our members, and afford them a pleasant place to drop in now and then.

Third.—Would it not be well to arrange our course of papers and addresses in advance, so that we should be able to announce before the fall opening, just what is to be expected?

Fourth.—Would it not be well to hold our annual meeting for election of officers and general business, in advance of the annual literary exercises, devoting, say, one evening for each?

And now, before we gently close the door of the old year behind us, let us not forget that, among its vicissitudes and changes it marks the removal from our society of two of its most valued members, our good friends and associates, David M. Osborne and William Gray Wise. Each was a steadfast friend of the Cayuga County Historical Society, and each contributed largely to its support and encouragement in times when such help was most needed. We shall not meet them here again, except as we look for them in the past history of Auburn's best and most faithful citizens. But we may bear them in grateful and kindly remembrance so long as this society shall last, or we remain behind to keep the record.

Fellow members, we are about to draw aside the curtain which veils another year; its comings for us are too obscure for either record or prophesy to-night.

May your individual blessings be many, including peace, happiness and success in your various undertakings; your trials, sorrows and disappointments, light and few in number.

And while Providence shall continue to work out life's problem for us, in 1887, let us see to it that our associated work here goes on with vigor and intelligence, so that the Cayuga County Historical Society shall gather additional strength with its increasing years.

SEWERS: ANCIENT AND MODERN;

WITH AN APPENDIX,

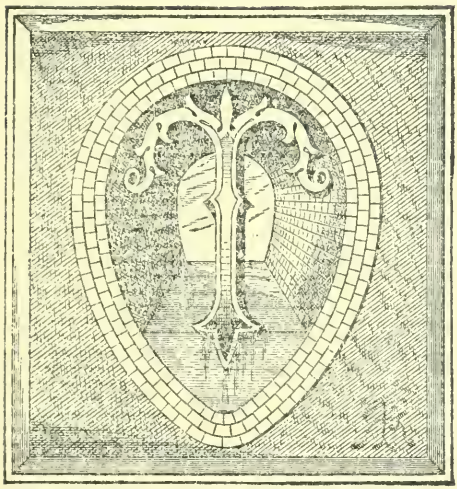
COMPILED FROM OFFICIAL SOURCES OF THE SEWERAGE SYSTEM OF THE CITY OF AUBURN, N. Y.

A PAPER READ BEFORE THE CAYUGA COUNTY HISTORICAL SOCIETY, DECEMBER 14, 1886.

BY CYRENUS WHEELER, JR.

Mayor of Auburn, and a member of the Historical Society.

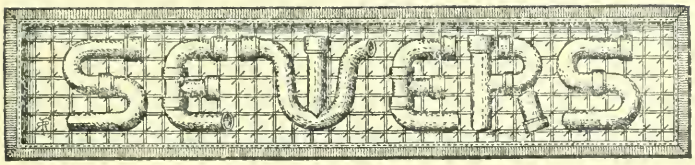
INTRODUCTORY.



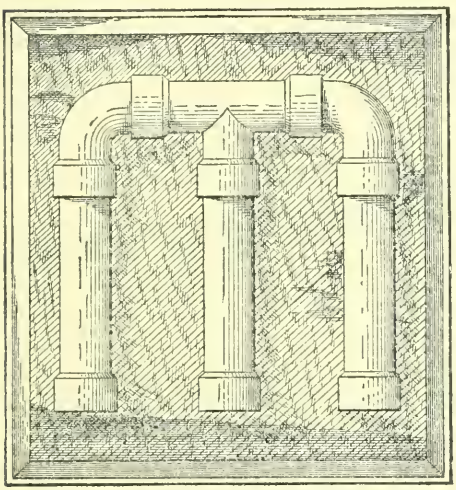
HE subject of our paper this evening will be Drainage and Sewerage, ancient and modern. How the work was done; how it is done; how it should be done:

To some of our hearers this evening we fear the subject will be dry and uninteresting, yet it is one of great importance and should not be ignored. The character of the drainage and sewerage of our residences and their surroundings, determine the standard of the individual and public health. The more perfect and thorough this work, the purer will be the soil, the water, and the air; the higher the standard of public health, and the lower the death rate. We have succeeded a people, whose lives were passed in a primitive manner, on this beautiful domain.

"Lo, the poor Indian," erected his wigwam on our river banks, and here children engaged in healthful play; young men and maidens, in youthful pastimes, and old men met in council. Their wants were few and their ambitions limited. "Fire water," and the enervating habits of a modern civilization, had not then been introduced. The pure air of Heaven surrounded him; pure water from Owasco's stream, or adjacent springs, quenched his thirst, and simple food satisfied his hunger. Here he lived, in the enjoyment of a vigorous animal life. "Malaria" to him was unknown, and death when not ushered in by accident, or the tomahawk of an enemy, came by the slow approaches of old age, to transport him to the happy hunting grounds where, "His faithful dog shall bear him company."



SEWERS: ANCIENT AND MODERN.



MAN in his primitive state paid little attention to his sanitary surroundings. His animal instincts prompted him to make his resting place when not engaged in a search for food, in a dry and sheltered situation; and experience would soon teach him that such places, were conducive to his physical comfort. If carried back in imagination to pre-historic times, we may see him, intellectually, but little above the beasts of the field, his animal nature preponderating. In such a state he would only be stimulated to activity, by the demands of hunger, and the necessity of guarding against the attacks of the enemies that surrounded him. Experience in time taught him, that the struggles of life would be relieved by association with other men, for mutual protection and defense. This bringing together of numbers of the human family, in clans or tribes, necessitated the selection of favora-

ble locations, for their home life. These selections were made, with due regard to their proximity to water and food, freedom from moisture, and the advantages of good natural drainage. The shelter in those primitive days was of the rudest kind, affording good ventilation and ready removal to a different locality, when the necessities of the occupants made it necessary. That the Aboriginees of this country practiced this this, is clearly shown by an examination of the sites of their villages, many of which can still be identified. In the primitive state, the difficulty of procuring necessary food prevented the gathering together in one place, for any length of time, of large numbers of the humanfamily. In the progress of human developments, families became associated together in larger numbers; and with the increase of numbers, other, and unseen dangers surrounded and assailed them.

The alarming inroads of disease and death, at times struck terror to the stoutest hearts. In their ignorance, they attributed their sufferings to the anger of some unseen and undefined being whom they had offended. One stage further in development, and unusual attacks of disease and death were charged to an overruling Providence, or the visitation of God. In progress of time, some minds more advanced than others, recognized the great law of cause and effect, and began to enquire the cause of the unusual visitations of disease and death. Investigation, closely connected certain conditions and surroundings with disease and death of a certain character, or type; and conviction in the minds of the few, led to the efforts on their part to remove the cause; with the cause removed, they found disease disappeared. In time there became established in the minds of many, the fact, that great unchangable laws governed the inanimate material, as well as the animate physical world. All these laws existed long before they became established facts in the minds of any portion of the human family. From the records of the human race, as found

in Genesis, we learn that prior to the flood, the wickedness of the world had become so great, that the flood was necessary for its purification. The inhabitants of the world at that time, had so far infringed on the laws governing their physical and moral life, that natural selection could not accomplish the work of regeneration, and selection by an overruling power was necessary for the proper development of the human race.

To Noah the promise was made, that seed time and harvest should thereafter continue to the end of time; and the bow of promise spanned the Heavens, as a reminder that the promise would be fulfilled.

Noah and his sons went forth from the Ark to people the earth. In those early days they led a pastoral life, living in tents, and changing their locality as the wants of their increasing herds, or the changes of the season demanded. Their simple out door life, and limited numbers gathered under a patriarchal government, was conducive to health and longevity.

The first large gathering of people after the flood, was on the plains of Shinah where the abortive attempt was made to reach the heavens, by the erection of a tower which, from the confusion of tongues that followed, and the dispersion of its builders, has come down in history as the tower of Babel. The first recorded sanitary direction given to any people is found in Deuteronomy, XXIII chapter, 11th, 12th and 13th verses, in which washing for cleanliness is commanded, and a place to be set apart outside of the camp. and a paddle ordered used on their weapons for sanitary purposes.

Pure water was early recognized, as essential to the health and comfort of the human family. Hunger can be longer endured without serious injury, than thirst; and without an abundant supply of water where large numbers of people are congregated together, good sanitary conditions cannot be long maintained, and it has been truthfully said that "Cleanliness is indeed next to godliness."

In the city of Jerusalem, 726 years before the birth of Christ, in the reign of the good king Hezekiah, will be found recorded in the 2d of Kings, 20th chapter, and 20th verse, that he caused "a pool to be made, and a conduit, and brought water into the city."

Recent excavations made on the site of Solomon's Temple, establishes the fact, that a thorough system of drainage and sewerage, was provided for the temple, and its surroundings. The general canal system of Egypt, executed under Ramesis the first, and his successors, served extensive drainage and sewerage purposes. The canals of Assyria and Babylon, fed by the Tigris and Euphrates, probably served the same purpose. The ancient Romans at an early period of their history adopted a regular system of drainage and sewerage. The trunk sewer of Rome, called the Cloaca Maxima, constructed of hewn stone, fifteen feet wide, and thirty feet high, was originated by Tarquin the elder, one hundred and fifty years after the foundation of the city. Agrippa sailed through it in a boat, Nero the tyrant caused his victims to be thrown into it; and it yet remains a part of the sewerage system of Rome. An elaborate system of sewerage has been discovered in connection with the Colosseum.

The ancients not only fully comprehended the necessity of drainage and sewerage, but as fully appreciated the advantages of an abundant water supply, for cleanliness and health, and availed themselves of its advantages as a means of removal by water carriage of the filth from their dwellings. On this continent evidences exist of its ancient inhabitants having some knowledge of drainage, if not of sewerage. In the works of the mound builders of this country, are found evidences of conduits, aqueducts, and reservoirs, showing that such a system was in existence at an early day in this country.

The date of these works cannot be determined, as they antedate any history extant, and were evidently constructed by an

extinct race, superior in intelligence and constructive skill, to the Indian race, found here, at its earliest discovery by the whites.

Drainage, as well as sewerage, should receive due consideration. While drainage is important, sewerage is indispensable in a sanitary point of view. The question of drainage received attention in England, as early as 1436, when the possibility of relieving "the fens bordering on the river Ouse was agitated."

Nearly two hundred years after this the Earl of Bedford attempted to reclaim this tract by an embankment, but failed after an expenditure of half a million; but his son fifteen years afterwards by an expenditure of one and one-half millions, cut two drainage channels more than twenty miles in length, of navigable capacity, through this tract. In England at an early day the system of underdraining was practiced with advantage on wet lands; stone being first used and afterwards, earthen, or clay tiles. Holland has an extensive system of drainage, which has been in practice for centuries. Within the last half century, the system of under drains for the improvement of moist, or wet lands has been introduced, and quite extensively practiced in this country.

Central, and western New York, in its early settlement, with a virgin soil, penetrated by the roots and fibers of a heavy growth of timber, recently removed; produced abundant crops.

As the roots and fibers decayed, they enriched the soil, and left channels which served to relieve the soil, to a considerable extent, of its excess of moisture. Continued cultivation closed these channels; and land once light and friable, became heavy and sodden, cropping unprofitable, and drainage had to be resorted to, or cultivation abandoned. Stone, here as in England was first used, but drain tiles and pipes were introduced and extensively used for that purpose. Their invention, and first use for the purpose, is believed to be due to the Romans.

In England, sewer commissioners were appointed in the

reign of Henry VII; but their powers were limited to surface drainage, and sea walls, the sewerage being left to the local commissioners.

The drainage of London was provided for by legislative enactments, commencing in 1225, and the whole was revised by Sir Thomas Moore, in the celebrated bill of sewers, passed in 1531.

The use of sewers in London, up to the present century was limited to the water that runs in the gutters, and the liquid refuse from the houses. In the reign of George III, an act was passed prohibiting the discharge of other matter into them under a penalty. The houses were provided with cess-pools, the accumulations of which were occasionally removed by the night carts.

The introduction of an abundant supply of water into the city, and the invention of water-closets, led to a new use of the sewers; and to results, not contemplated in their original construction.

The refuse matter of the cess-pools, instead of being transported into the country, to enrich the soil, was turned into the sewers, and discharged into the river Thames, at the nearest point. These sewers proved insufficient for the work, and reconstruction on a larger scale became necessary, and a regular system was adopted; bringing the sewers down to the river on each side, for a distance of six miles; their total length in 1855, exceeded 2,000 miles, and at that date, London was regarded as the best sewered city in the world.

Notwithstanding the magnitude of the work, serious difficulties existed by reason of the low points of discharge of the sewers into the river, made necessary to obtain sufficient fall. The result was, that their outlets remained closed for a large portion, of every twenty-four hours by the rising tides, forcing back into the houses noxious gases. Another difficulty arose from the large accumulation of filth along the banks of the

river, caused by the obstructed flow of the sewers. This accumulation, at low tides, in warm weather, filled the atmosphere with offensive odors and gases.

To remedy this difficulty, it was decided in 1858, to adopt some means to abate the nuisance. An effort was made to do so, by discharging into the sewers, during warm weather, immense quantities of lime, and chloride of lime, for the purification and disinfection of the same. During the summer of 1859, 110 tons of lime, and 12 tons of chloride of lime, were daily thrown in, at a weekly cost of £1,500, and £20,000 was expended during the season in flushing the sewers. This method proving unsatisfactory, to remedy the difficulty, three large parallel intercepting sewers, seven miles long were constructed, on each side of the river, at different levels, crossing the old sewers at right angles, so as to intercept and carry off their contents. These intercepting sewers, cost £4,250,000, or $21,250,000, and it is estimated that the total cost of these immense works, will not fall short of £30,000,000, or $150,000,000.

The importance of the sewer system of London, and its magnitude will be apparent, when it is stated, that her sewers discharge into the river Thames, 44 tons of refuse per minute, an amount equal to 23,126,400 tons per year. This would require for its removal if transported by rail road, in cars carrying standard loads of ten tons each, 264 cars per hour and 6,336 per day, or 316 trains of 20 cars each, daily; and allowing 525 feet for each train, 31 miles of railroad track would be required, to stand upon.

London, to-day, is undoubtedly the best sewered city in the world, and this is conclusively proven, by a comparison of its annual death rate with other cities of less population. With a population of 4,083,928, for the month of July last, it was equal to 17.9 per 1,000 annually. The city of Liverpool with 579,724 inhabitants, had a death rate of 28.9. New York city

with a population of 1,439,000 for the same time had a death rate of 34.35,—a marked difference.

In the "Revue d'Hygiene," for October, Dr. Bertillon, in giving the comparative healthfulness of different cities for 1885, states that the death, by typhoid fever in every 100,000 inhabitants in London was 17, and in New York 26; and the death from diphtheria for the same number of inhabitants in London was 22, in New York 94.

The drainage and sewerage of Paris, another important European city, has been greatly improved in the last half century, and at the present time, is second only to that of London. Napoleon the First, ordered the repair and extension of the system during his reign, and the extension and improvement has continued until the present time. The main sewers are of sufficient capacity to receive gas and water mains, and in some of them, rails are laid on which cars are run, and in others boats are used for cleaning the same, and they are accessible to visitors by the same means. In connection with these sewers, a system of gutter flushing is in practice, making the streets of Paris models of cleanliness. The improved system of sewerage and drainage, has proved so beneficial to the public that the annual death rate, which was 36 per thousand in Louis the XVI time, has been reduced to 22, and Paris, to-day, is the healthiest city on the continent.

The construction of sewers in this country until a recent date has been without any well defined system, and has been the result of a pressing necessity. The cess-pool, and vault, or no vault system prevailed for a long time, and still continues to exist to the detriment of health in many places.* The cess-pool and vault systems are usually but holes in the ground, sometimes lined with wood, and the more rapidly their contents disappear, the more valuable they are thought to be. Small, irregular water courses, walled up with loose stones, and covered over in time were made to serve as sewers; and what were

* See Plate 22.

once harmless rivulets, became elongated cess-pools of the most dangerous character.* In many instances, they were connected with cellars by drains without traps, furnishing ready avenues for the entrance of noxious gases to the cellars and living rooms above.

In the earlier constructed sewers, it was thought necessary to have them serve the purpose of drainage as well as sewerage, and no attempt was made to construct them as water-tight conduits. With the introduction of pipes, they were laid without cement in their joints, thus making long cess-pools of what should have been water-tight conduits.†

The danger of cess-pools and badly constructed sewers, (which are much worse as their influence is far reaching), cannot be estimated. The accumulation of refuse matter, within and around or in the vicinity of human habitation is always attended with danger. If permitted to accumulate for a sufficient length of time, it will tell upon the health and vitality of the occupant. Gases will be generated, and bad air, under the popular name of "malaria," will be held responsible for ills that often make life burdensome. In locations unfavorable from lack of good natural drainage, the difficulty is increased and the danger intensified. With a dense population located on ground saturated with water and an accumulation of filth, having no outlet except by the slow process of evaporation, an undue amount of sickness may be expected to prevail. In soils saturated with filth, during the winter when the surface is closed by frost and ice, the danger from noxious gases is increased, as the easiest avenue for their escape is through the cellars of residences to the rooms above. This danger is increased in buildings warmed by furnaces in the cellar, even if the supply of air for the rooms above is taken from the outer air. If the air is all taken from the cellar the danger is increased. The danger is not entirely due to noxious emanations, but from the use of water for drinking, taken from wells sunk in such soil.

* See Plates 6 and 8.

† See Plates 4, 5 and 10.

Artificial drains, it is understood, will in most soils, draw water horizontally, ten times their depth vertically. This is true in soil and sub-soil, free from underground water channels; when these exist, wells may, and undoubtedly do draw their supply from long distances. Water will find its level, and sheets of water and rivulets exist at varying distances below the surface of the earth. These mainly derive their supply from rainfalls, and have a more or less rapid movement according to the character of the soil and sub soil, and the strata of rock on which they rest. Wells supplied from such sources are liable to become contaminated, especially in localities honeycombed with vaults and cess-pools, and what is worse, badly constructed sewers. It is claimed that water passing through the earth is filtered and purified. It should not be forgotten that the earth acts more as a sieve, to remove the impurities that it holds in suspension, and that poisons in solution remain in the water after filtration. Clearness is not a proof of purity. A glass of water clear as crystal, may contain poison enough to kill a whole family, not alone by the slow process of disease, but immediately and surely.*

The peculiar sparkle and flavor of the water from some wells so highly prized as a beverage, may be due to deleterious gases and poisonous adulterations from some cess-pool near by, or more distant.

Danger always attends the use of water taken from wells in cities. Though active disease and death may not follow from the use of sewer and cess-pool contaminated water, the standard of health and vitality may be so lowered that life may to a certain degree be felt to be a burden. Many ills are charged now to malaria, which were in former times charged to an imaginary being whom the sufferers believed they had offended. The sympathies of kind hearted neighbors are often extended to sufferers from sickness, with a feeling that a hard fate attends them, when a better understanding of the cause would enable

* See Plate 7.

them to discover some connection between cess-pools on their own, or their neighbor's property, or an imperfect sewer. A careful analysis made of the water of a well, at one time of the year, will not prove what its condition may be at another. Its character may be entirely changed by a drought or an excess of rain-fall. It is safe to assume that wells in the more densely populated parts of cities are always in danger of contamination, and that it is unsafe to draw from such, your daily supply of water.* Remember that pure water cannot be obtained with certainty from wells sunk amongst cess-pools, no more than pure air can be expected in houses connected with sewers and cess-pools, without proper traps.

Cowper sung "God made the country, and man made the town:" and Cowley, "God the first gardens made, and the first city Cain." The first city was built in the "Land of Nod," a name suggestive of "malarial influences" or "bad air." The sixth commandment found recorded in "Holy writ" is, "Thou shalt not kill." How many deaths in cities are due to bad drainage and sewerage, can never be determined. The indictment and conviction of bad sewers and cess-pools, for murder and manslaughter, (or more properly, women and children slaughter, as they are the greatest sufferers), would be of advantage, if execution could speedily follow, and their removal take place. the slaughter of the innocents would decrease in a marked degree. For every person dying, it is estimated twenty fall sick; and Playfair estimates it at twenty-eight. Municipal authorities are not blameless in this; and it is not a good defense to say, "Where ignorance is bliss 'tis folly to be wise," or believe as another has said:

> "From ignorance our comfort flows,
> The only wretched are the wise."

The Polution of streams and bodies of water adjacent to large cities, must to a certain degree always take place; as the nat-

* See Plate 7.

ural rain fall, or so much of it as is not disposed of by evaporation, sooner or later finds its way to some river or body of water. It has been found that running streams furnish the best available means for the disposal of liquid filth, and refuse of cities. Water carriage, when available, has been found to be the cheapest, as well as the least objectionable means of disposing of the large quantities of filth that would otherwise accumulate, to the detriment of public health. With the introduction of an abundant supply of water in cities, the necessity for sewers increases. Ancient Rome, in all her glory, with her public baths, is said to have had a supply of 300 gallons per head, daily. This was no doubt an extravagant expenditure. The daily consumption in New York, for each person, is 95 gallons; in Albany 75, and Buffalo 63. The Water Works Company of this city, is delivering to our citizens at the present time, 2,500,000 gallons; equal to 96 gallons for each of 26,000 persons, the estimated population of the city.

This water mixed with the refuse of manufactories and dwellings, finds its way into the Owasco river again, as sewerage, and cannot fall much short of three and a quarter million of gallons; this is equivalent to nearly one car load per minute, or 54 cars hourly, and 1,296 daily, or 65 trains of 20 cars, carrying 20,000 pounds each, daily. This is diluted by the average daily flow from the Owasco lake, of 60,000,000 gallons, a dilution equal to 2,453 gallons to each inhabitant. A large portion of the impurities carried by rivers, are sooner or later deposited, at a greater or less distance, from the point where received. It is estimated that the Mississippi river deposits annually in the Gulf of Mexico, no less than 400,000,000 tons of mud.

This city is favorably located for drainage and sewerage. The Owasco river, the outlet of Owasco lake, a body of water unexcelled for purity, flows centrally through the city. At times its flow is rapid, and at all seasons its current is sufficient

to bring a continuous fresh supply. The extreme dilution of the sewage of the city after reaching the river, renders it comparatively innoxious. It can have but little, if any, influence on the atmosphere, and the only danger lies in the exposure by low water, of the filth deposited along its banks, for too long a time, in the heat of summer. The removal of the Prison dam has been advocated by some; but this, it is believed, can only be done with safety when the city, or its citizens, are prepared to wall up the channel of the stream, and fill in the adjacent banks without delay.

With the ground water held at a uniform height, there is less danger from the exhalation of noxious gases, than where considerable changes in height takes place. The ground everywhere contains more or less air. In porous soil, the proportion is estimated at one-third cubic foot of air to each cubic foot of earth.

In ground filled with water the air is expelled. As the water falls, the air takes its place, and as it rises again, the air is again expelled.

If the ground is filled with animal and vegetable filth, noxious gases or bad air is expelled. Thus the earth goes through a process of breathing. These noxious exhalations from the body of diseased mother earth, are comparatively harmless, if largely diffused through the atmosphere. If instead, it escapes into a confined space, like a cellar, it may prove a slow, or more active poison. It has been pointed out by Professor Pettenkoffer, that in districts where the rivers are held up by weirs or dams, at a uniform level, the conditions are favorable to health.

In an examination of the records of "Vital Statistics," going back to January, 1885, and including this year, to the present time, it is found that the whole number of deaths, in the swamp district, included on both sides of Dill street, State street to Academy, Academy to North, to Dill and Market

street, embracing 30 acres in the heart of the city, was 25. Of these seven (7) were over 60 years of age; over 40, and less than 60, four (4); over 20, and less than 40, six (6); over 10, and less than 20, one (1); over 5, and less than 10, one (1); over 1, and less than 5, two (2); less than 1 four (4). The causes of death were as follows: Old age 2; pneumonia 2; heart disease 2; cancer 1; consumption 3; Bright's disease 1; apoplexy 1; inflammation of the bowels 1; chronic bronchitis 1; debility 1; inflammation of the bladder 1; peritonitus 1; congestion of the brain 1; convulsions 1; entro coletis 1; cerebral spinal menengitis 2. The last two cases were children, one of whom died in Market and the other in State street.

Water contaminated with sewage, is not a safe every day beverage; and some of our citizens evidently fear that Owasco lake water cannot be drank with safety, at least, so long as they can obtain something they like better. The erection of public hydrants in localities in this city where wells are now generally in use, would be a public benefit, as with their erection, the use of wells could be prohibited. Under the system now in practice, for the disposal of the refuse of cities, other questions besides contamination, must eventually receive consideration.*

A steady drain upon the country is going on, and its fertility and productiveness is being reduced, and in time with the increase of population will be seriously felt. The time is not far distant when young men and old, will not, as now, be able to follow the advice of the venerable sage Greely, and "Go west." The fertility of this country, and the facilities for transportation are such, that our cities can draw their supplies of food from long distances; and from large tracts of country; but it is safe to assume, that with the rapid growth of cities at the present day, the time is being hastened when the stream of wealth that now flows into the sea, will be directed to the land. The stream of fertilizers, that London is daily pouring into

* See Plate 7.

the Thames; if it could be as easily, and cheaply, spread over the Emerald Isle, would so increase its productiveness, that immigration would cease, and many of her sons and daughters return to their "Fatherland."

Intercepting sewers parallel to the river, have been recommended; the necessity for them will arise when our city has quadrupled in population, or the time come when river pollution shall be forbidden and enforced by law, or the value of sewage as a fertilizer better appreciated.

The apparent turpidity, and discoloration of the water, is not a certain indication of increased pollution. Manufactories discharge dye-stuffs and refuse into sewers and streams, giving the fluid an appearance of pollution that does not exist. There is but little sewage discharged into the Owasco river, above Lizette street bridge.

It receives, on the east side at the bridge, the sewage from a considerable territory lying south of East Genesee street, and west of Seward avenue. On the west side below Lizette street bridge the Elizabeth street sewer has its outlet. At the Genesee street bridge, the East Genesee street and Second ward sewers discharge.

At the North street bridge, the Franklin street sewer discharges, and below the bridge on the south side the Dill street sewer discharges. On the north side below the bridge two sewers discharge. At the State street bridge, on the north side, the Cross, Wall and State street sewers discharge, and below the Prison dam, the sewers from State, Clark, Genesee and Hulburt streets discharge.

On the opposite side, through the Prison wall, the prison sewer has its outlet. Below Barber's factory on the south side, the Washington, Jefferson and Clark street sewers discharge.

On the north side, Washington, Barber and West Water streets discharge.

On the south side near Division street bridge another dis-

charges, which serves for Orchard street below Jefferson. On the north side below Aurelius avenue bridge the VanAnden street sewer discharges. There are several small sewers, on both sides of the stream that discharge into it, but they serve for a very limited territory. East of the highest point on Franklin street, sewers from it and Cayuga street discharge into an open brook. A territory lying east of Seward avenue; Morris street, Beach avenue and Grant avenue, discharges its surface water into this brook, and its sewers must find an outlet by the same route: and another tract lying in the north and west part of the city, drains north and west to reach the outlet.

On the south and south-west, another portion of its territory, finds an outlet in the same direction.

In the several portions of the city last described, the surface drainage reaches the Owasco river outside of the city limits.

This city, from its near proximity to several lakes receives annually a considerable rain fall. During the summer, showers are frequent, and often copious, and materially aid in flushing its sewers. The topography of this city is such, that the river receives the surface drainage, of a large portion of it, within its limits. A lime-stone ledge underlies the city, and in places forms the bed of the stream. This bed of rock is seamed and fissured, and in places where it is exposed, small rivulets flow into these fissures and disappear. This mass of rock underlying the city forms a floor, (except where fissures exist), impervious to water. On this floor a sheet of water rests, and is slowly moving towards a lower level. The character of the soil and sub-soil covering this rock is variable, embracing sand, gravel, quick-sand, swamp-muck, and boulder clay. In these have been constructed vaults and cess-pools, which have been long in existence, as the receptacles of the solid, and fluid refuse of the inhabitants, and will it is feared be too long continued.

Our citizens generally take pride in their homes, and adorn and beautify them. Neatness and order mark their residences,

and their surroundings; their lawns and shrubbery are kept neatly cut and trimmed, and their walks in good repair, and daily swept.

Fatal sickness has not invaded their homes; but it may have their neighbors. A beautiful and neatly kept lawn, may conceal a cess-pool that feeds a neighbor's well, and has sown the seeds of disease and death, in his household. The well from which you draw your daily supply of water, may be in near proximity to your cess-pool, and escape the foul current your neighbor's well receives.

Sewer construction in this city was begun, and has been carried forward without any very definite plan, beyond meeting the immediate and pressing wants of the time, and the locality where constructed.

The oldest existing sewers, (more properly elongated cess-pools), were originally concealed water courses; made so by the owners of the property, walling them up from time to time, as the several owners desired to hide a blemish, and improve their property. The walls were laid with stones without mortar or cement, and with but little attention to grade, and with no purpose in view, except to provide a covered conduit, of sufficient size, to carry the rain fall received in the basin it drained.*

In a few localities in the city, open drains that serve for sewer purposes still exist; and people reside in close proximity to them apparently without a thought of danger. Not long since, some members of the Board of Health were requested to visit such a locality, and when there, met a resident, a native of the "Emerald Isle," who evidently did not believe in sewers, and was unwilling that the salubrity and healthfulness of his locality, should be called in question, as he declared, with considerable earnestness: "By gorra, I have lived here more than twenty years, and there ain't a healthier place in the whole city: I never paid a shilling to the doctors." In this case the drain was made

* See Plate 1.

in the earth without protecting walls, and the supply of water was insufficient, to carry off its filthy deposits.*

The early records of the village show that some sewers were constructed of wood: the corporation timber, by direction of the village board, being applied to that purpose. A step in advance was made, when sewers were constructed of stone, laid in mortar, on a board or plank foundation. The next advance was the substitution of water lime cement, for quicklime mortar. It has been charged, that contractors sometimes used common clay, as a substitute for mortar; at least sewers have been so poorly constructed, that parties assessed for the same, refused to pay, the city failed to collect, and considerable amounts remain to this day uncollected. Sewers constructed of stone square in form, with flat bottom, if constructed in the best manner, are objectionable, as the flow of their fluid contents is much impeded, and they will at all times retain a large amount of filth and cannot be as perfectly flushed.† Brick sewers came next in order, made circular in form; then followed cement pipes, and lastly vitrified, or glazed clay pipes. There has been a gradual improvement in the construction, and material used, but there is still further advances required.

Many of the sewers heretofore constructed, fail in their workmanship. Brick sewers have been constructed with single walls, or rings of brick, circular in form. The objection to these is the difficulty, almost impossibility, of making the joints between the bricks tight enough to hold their fluid contents. All brick sewers should be built with double courses of bricks, and are only preferable, when exceeding a certain size.‡ In pipe, as well as brick sewers, leaky joints have been too much the rule. Until within a few years, it was thought to be an important requisite of sewers, that they should have open joints, to admit the ground water, so as to serve also the purpose of soil drainage.§ The joints of the pipes were left without cement, that the water might get in, without a thought of

* See Plate 23.

† See Plate 1.

‡ See Plate 20 and 21.

§See Plate 4, 5 and 15.

whether their contents would get out, or if out, what would be the effect: in fact many of our sewers are so many elongated cess-pools.

But few of the sewers have been laid deep enough, to serve for present use, or to admit of future improvement. They have not been properly ventilated, or been provided with proper openings and connections for the street water; and house connections have been left to the ignorance or caprice of any person who desired to make, or have them made; the Common Council granting permission to excavate in the streets for that purpose, and leaving the work without supervision. As a result the work is often badly done, and the streets generally left in bad condition.

The question of ventilation is an important one, and should not be overlooked. The wide diffusion of noxious gases through the atmosphere, deprive them of their deleteriousness. The mixing of "sewer gas" with a large volume of pure atmospheric air, hastens by oxydation the destruction of the noxious germs, with which the gas may be charged.*

The attendants upon patients in fever wards in hospitals, are free from danger, if proper ventilation is kept up; and when they suffer, it is conclusive evidence that the ventilation is bad. A physician of this city, who was a surgeon on active duty in the field during the war, has stated a case that occurred under his observation, where a field hospital, immediately after battle, was located in a grove: patients suffering from amputations, and serious wounds, were doing badly, and an unusual mortality set in; a removal of these patients from the grove to a high open field, exposed to the rays of the summer sun, with an unobstructed circulation of air, and improvement immediately followed, and within three days all unfavorable symptoms disappeared.

The sanitary rule of "Hippocrates," the "father of medicine" was "pure air, pure water, pure soil;" where these con-

* See Plate 19.

ditions exist, but little more can be expected. The best disinfectants for ordinary family use, are "pure air," and "sunlight;" and always, remember that faded carpets, are better than faded cheeks; and where the sunlight cannot come, the doctor must.

The earliest public movement for sewer construction, was made at an annual meeting held at the Court House, in the village of Auburn, May 4th, 1835, and was expressed in the following words: "On motion,

"*Resolved*, that the trustees be authorized to dig and form a subterranean drain; commencing near the Court House, on the south side of Genesee street, at such place as the said Trustees may deem proper to commence at, and run thence to the Owasco creek, either at or near Patty's store, or else running to the intersection of North and South streets, and thence turn and run north to the Owasco creek near the old market, as the said trustees may direct; and that the said drain be dug sufficiently deep to drain the cellars to the buildings on the south side of Genesee street, and that the same be made sufficiently large so that the same may be cleaned by men passing through it underground, and that in raising the necessary tax for the purpose of making the said drain, the trustees be directed to assess the same as far as may be practicable, upon such persons, where property will be benefitted by the construction of said sewer." Though this sewer was authorized at this early day, eighteen years elapsed before its final construction. In those days, as now, many people failed to appreciate their advantages, and were ready with remonstrances.

The records of Auburn, as a village, show that some of the earlier sewers were constructed of wood; although water courses were walled up, or partially walled up at an earlier day, as such are known still to exist, and are used for sewer purposes, though nothing in the village records indicates when or by whom constructed.

The first sewer constructed by the direction of the village authorities, was in 1839, and was from the Presbyterian Church, and was probably, from the church edifice to the creek. The cost of this sewer cannot be determined, as F. J. Clute, the builder of it, was for that, and removing the village pound, ordered paid $33.00.

In September, 1839, complaint was made about Mr. Richardson's drain on South street, and "on motion he was required to remove the same within ten days." What kind of a drain this was: why it was objectionable, or how, or where it was to be removed to, does not appear from the records. August 2d, 1841, the street committee were ordered to examine Green street, and ordered the notice for the construction of a sewer, "beginning at the north-east corner where it intersects Clark street, running thence along the east side of Water street: to be constructed of stone, two feet wide, and three feet high, well covered with flat stones." October 29th, the cost of this sewer was reported to be $560.00, and this sum was ordered "assessed on the property benefitted by the construction of said sewer." John Hepburn, George Casey, William Woods, Thomas Munroe, and Thomas Hunt, were appointed commissioners to assess the same. "July 4th, 1845, a sewer of oak and beach timber was ordered constructed on the south side of Clark street, of such dimensions as the street committee shall deem advisable." This sewer was constructed, though the cost does not appear, but the report of the Assessors was confirmed, and the property on said street assessed for the purpose, ordered sold, unless the assessments were paid within three days. This would appear at the present day, like a summary proceeding. Evidently the village fathers believed in prompt payment. "October 4th, 1847, a sewer was ordered constructed on the south side of Genesee street, from the termination of a sewer near Joseph T. Pitney's to the Owasco creek; to be built of stone, one foot square in the clear," and November 15th, 1847,

$90.00 was ordered "assessed on property benefitted by the construction of said sewer." The sewer with which this connected, was probably a private sewer on the south side of Genesee street, which had its opening near Dr. Pitney's residence. April 6th, 1848, the "Loveliest village" became a city, and began to put on "City airs." On the 9th day of May, the "City Fathers" aired their wisdom, by the passage of an ordinance forbidding, under a penalty of five dollars, any person "putting any straw, shavings, wood, tan bark, stones, ashes, rubbish, or any filthy substance in the sewers of the city." Our "city forefathers," evidently started out with the determination to make the sewers models of cleanliness. If the ordinance could be enforced, there would have been no trouble from sewer gas. In 1848, a sewer was constructed in Chapel street, in front of the property of the Auburn and Syracuse Railroad Company, at a cost of $48.00. Two sewers were ordered constructed in July, 1850. One of them from "Consider Carter's, on State street, easterly through the lower ground between Genesee street and Dill street, to a lane in the rear of the Methodist church, and thence across Water street, to the creek; the other from Seymour street, south along Cross street to Wall street, and thence along Wall street, to the sewer passing under the Prison wall.

Each was "to be of stone, on plank foundations, one and one half feet wide, and one foot high in the clear." Loren Patchen built the Cross street sewer, at a cost of $275.55, and the cost of the other was $393.07; who built this does not appear. At the same meeting, $121.87 was ordered assessed on property benefitted by a sewer on Water street; this probably was a continuation of the Green street sewer. At the same time $149.69 was ordered paid to Daniel Goodrich, for a sewer constructed by him on the west side of Hulbert street. In May, 1853, the "Committee reported in favor of constructing a sewer from the court house along the south side of Gen-

esee street, to the Owasco outlet, to be constructed of stone, on a stone botton, with flag stone covering, to be four feet by two feet in the clear." June 20th, 1853, a contract was entered into with Daniel C. Goodrich, for the sum of $2,800.00. September 12th, following, the committee reported the cost of the same to be $3,423.21, and that amount was ordered assessed on the property benefitted. July 25th, 1853, a resolution rescinding the order of the Council for the construction of a sewer in Academy street, was introduced, and was very wisely held to be out of order, as the sewer was already completed, and the cost of the same was reported to be $81.77. November 12th, 1853, a suit was reported commenced against the city by Miller & Tibbals, on account of the construction of the Genesee street sewer; how it terminated the records do not show.

Time will not admit of a further detailed statement, of the sewers constructed. To this time, it is estimated that there is within the city limits 26 miles of sewers: seven of which were constructed by private parties.

The number built by the order of the village and city is 60; of these, 36 were constructed prior to 1881, at a cost of $30,219.34; and since then to the present time, the number constructed is 24, and the cost $62,202.31, making the total cost $92,421.65. The private sewers are estimated at $10,000.00, making the whole cost of sewers to date $102,421.65. In this connection an examination of the records of "Vital statistics" of the city, will be of interest.

In 1882, the whole number of deaths in the city was 495; on the basis of a population of 26,000, this is an annual death-rate equal to 19 04–100 per 1,000 inhabitants. In 1883, the whole number of deaths was 339, equal to 15 35–100 per 1,000. In 1884, it was 389, equal to 14 96–100 per 1,000; and in 1885, it was 357, equal to 13 73–100 per 1,000. This is a reduction of 38 per cent. in the death-rate, between 1880 and 1886.

This reduction, from whatever cause, is very remarkable. On the basis of the death-rate in 1882, the duration of life would be 52 52–100 years, and for 1885, 72 83–100 years.

This reduction in the death-rate in the same ratio cannot be expected to indefinitely continue, as the duration of human life half a century hence would be 326 68–100 years; and the days and years of the oldest patriarch Methuselah, would be again reached, perhaps exceeded. We can, it is believed, give to the increase in sewerage facilities, a portion of the credit; and another portion to the increased use of Owasco's water; another portion to the sanitary work of the Board of Health; and a portion of this very marked improvement must be set down to favorable conditions, not at present understood. It will no doubt be some time before this city reaches that degree of healthfulness claimed for some of the earlier western cities, where it was asserted, nobody died, and they found it necessary to "shoot a citizen to start a cemetery."

The largest and most expensive work, was the Second ward sewer, nearly one mile in length, costing $23,932.91. This sewer was proposed as early as 1870, and a survey and estimate of the cost of the same made; and this was repeated from time to time, different surveys being made, until 1881, when an act of the Legislature, providing for its construction was passed, the right of way secured, and the work undertaken.

Unavoidable delay in commencing the work, made it impossible to complete it before winter set in, and the work was continued, and completed in 1882. Robert Tate was the inspector, appointed at the commencement of the work, and gave good satisfaction to the tax-payers on the line of the sewer. The election of a new board of Aldermen in the spring following, had changed the political complexion of a majority of the council; and on the afternoon of July 12th, 1882, a call for a special meeting of the council that evening, signed by five Aldermen, was served on the other Aldermen, and the Mayor.

Some one surmised the object of the meeting, and in a brief time, the names of the largest portion of the tax-payers along the route of the sewer was obtained to a remonstrance against the removal of Mr. Tate, and asking his continuance in the position. This was handed to the Mayor a few moments before the organization of the meeting, and he placed it in his pocket to wait events. A few minutes after the organization of the meeting, a resolution preceded by a preamble in the form of a

WHEREAS, said sewer is not "being built in strict conformity to the specifications, etc.," and ending with declaring the office of Inspector of the Second ward sewer vacant. This was followed by the presentation, and reading of the remonstrance of the tax-payers interested; when the mover wisely concluded that it was best to, and did withdraw the resolution, and it was never renewed; and Mr. Tate continued inspector to the completion of the work.

This case is given as an illustration of the pernicious tendencies of politics in the construction of works of a public character.

In the construction of sewers, everything depends on the character of the work; and the importance of selecting a competent man for the position of superintendent, or inspector, should not be lost sight of.

The question will now be asked, what is the best system of sewerage and drainage for cities? This question would receive from different persons, claiming to be experts on the subject, different answers; and the response from their hearers might well be, "When doctors disagree, who shall decide?" Without claiming to be an authority on the subject, you will permit us to give our views on the question, after briefly describing the principal systems now advocated and practiced. There is very generally in use in our cities what is known as the combined system. This name has been applied to it somewhat recently,

to distinguish it from the separate, sometimes called the "waring system." There is also in use to some extent, what is called the "mixed system," or one which embraces to a certain extent, both of the preceding systems. The combined system is that in which the rain fall, the sewage proper, and the street washings, are received into, and flows in the same pipes and conduits. The separate system, provides conduits, for the sewage proper only; and either provides separate conduits for the rain fall, and gutter flushings, or permits the same to flow off in the gutters at the side of the streets. The mixed system, embraces both of those described, the lateral sewers being of the separate system, and the main or trunk sewers of the combined system.

Under this system, the rain fall is carried in the street gutters, to the streets where the larger, or trunk sewers are located.

The objection to the combined system, is, that they must be constructed of large size, at increased expense, and of sufficient capacity to carry the greatest amount of rain fall that can take place at any time of the year: whilst at other seasons of the year, their capacity is largely in excess of their requirements, and are liable, from an accumulation of filth in them, to generate noxious gases, which will endanger the public health. Such sewers are difficult and expensive to flush, and only receive it when a heavy rain fall occurs. The objections to the separate system, are that it is only adapted to a city, the streets of which are densly built up.

That to attempt to build sewers, under the separate system, in sparsely built cities, or in sparsely built portions of cities, would involve an expense for flushing that would be in excess of its advantages. It is believed that it can only be applied with success in crowded cities, with paved streets. If a separate conduit is also laid in the streets for receiving and carrying off the rain fall and street flushings, the expense will exceed that of the combined system.

Memphis has made trial of the separate system with a good

degree of success, but difficulties have arisen, either from deficiency in size, or the increased demands made upon the pipes, in some localities. It is a question whether any sewer system can be devised that will be equal to the requirements of the service, at all times, and under all conditions.

A sewer adjusted to the requirements of the day time, would be largely in excess of the requirements of the night.

The Water Works Company of this city, at the present time, is delivering hourly, from 6 o'clock A. M. to 10 o'clock P. M. twenty per cent more water than it delivers between the hours of 10 P. M. and 6 A. M., and under any system, sewers of smaller size would answer for the night, than would be required for day sewers.

Flushing tanks working automatically, may be provided, with an abundant supply of water, and still it remains a question whether they have any advantages, even in densly populated districts over the combined system. In all cities, there is more or less accumulation of filth on the streets, and with the separate system, this filth to a certain extent, must either find an outlet by way of the street gutters, or a separate conduit for that purpose, and with every storm this must be swept into the conduits, or along the gutters. In a time of drouth, (which seldom occurs in this locality) flushing, by means of the fire hydrants, for which provision is made in the contract with the Water Company, should be resorted to.

Believing that the combined system is well adapted to our city, we will now briefly describe what we believe to be the best way to apply it, or "how it should be done."

First of all, the proper material should be selected and properly applied. For all sewers under two (2) feet in diameter, pipe tile should be used. Pipe of cement, if properly made, of first quality materials, is to be preferred. Such pipe increase in strength by time and use, and the sections can be so united as to give, what is of importance, a smooth internal

surface, of uniform diameter. The next is glazed, or vitrified clay pipe, made in sections of uniform diameter, internally and externally, with separate short sections, or rings, of the same material, for securing the abutting ends of the sections. This kind of pipe, if properly laid, will give uniform smooth internal conduit.*

The next best, is the pipe with an enlarged socket end, for making connections. These are the most difficult to unite, so as to produce a smooth, uniform channel. Pipe of all kinds should be provided with branches for connecting latteral sewers. Branches should not be united at right angles, but at a less angle, or in the form of a Y. Bends should be used, where lateral sewers are laid at right angles to their mains.†

For sewers over two (2) feet in diameter, brick is the cheapest and the best; hard burnt brick only being used, and laid with good cement. The walls should always be laid double, and with joints properly broken. Single brick sewers cannot be relied upon, as leakage of their contents is liable to take place from imperfect joints. The best form of brick sewers is the combination of two semi-circles, of different diameters, united by sections of an eclipse, forming what is generally known as an egg shaped. Sewers of this form must be laid a little deeper than the round ones of the same capacity, but the advantage of a more rapid flow of their contents when partly filled, will more than compensate for the small increased cost. The connection of all branches with mains, should, as far as possible, be made above the base line of the arch. Work of this character should not only be thoroughly done, but no inferior material should be used, at any price.

In the construction of sewers in cities, the future as well as the present should be considered. Whilst the cost may be slightly increased, it will be cheaper than to enlarge from time to time, to meet the requirements of increased population on the same or adjacent territory. A carefully considered plan should

* See Plates 13, 14, 19 and 20.

† See Plates 9, 13 and 14.

be adopted, embracing the whole city, or so much thereof as is embraced in one entire water shed. Main or trunk sewers should be first constructed, and be large enough, and deep enough, to carry the accumulations of all the branches afterwards required. The branches should be laid deep enough to give thorough drainage and sewerage to all buildings erected, or that may thereafter be erected, and to admit of the deepening of shallow cellars, in houses already erected, and made so from necessity, by reason of lack of proper drainage when constructed.

The excavations should be made to conform to the outer contour of the sewer, whether constructed of brick or pipe, and should be laid in conformity to the grade given by the engineer. If of brick, the walls should be laid with double courses, in good cement, and at the spring of the arch, the brick should be laid as headers, to give increased strength. Ventilating flues should be laid up to the street grade, one every 150 feet, and capped with an iron frame and grating.* These ventilating flues should, as they approach the surface, be enlarged so as to give the covering grate an area of opening at least equal to the area of the flue. At every point where the line of the sewer is changed in direction, manholes should be constructed and capped with a ventilating cover. This should be done without reference to the location of the street gulleys, or basins for receiving the street water. These ventilating flues, rising from the crown of the sewer, will permit the gas to escape freely, and by its rapid diffusion through the atmosphere become comparatively harmless, as well as inoffensive. The branches for receiving basins or gulleys, should be connected with the sewer at a low level, so as to avoid the escape of gas through them, that its entire volume may be discharged through the more direct channel of the ventilating flues.

The receiving basins should, as far as possible, be located at

* See Plates 19 and 21.

the corners of intersecting streets, and should be placed inside of the curb-stone. They should have sand traps, or basins, of sufficient size and depth below their outflow, to contain at least twenty-seven cubic feet. Without receiving basins, the heavier material washed by heavy rains, from unpaved streets, will find a lodgment in the sewer, and retard the flow of liquid filth, and produce an excess of noxious gases. The inlet for the water should be through a hole in the curb stone, protected by an iron grate or bar. The basin should have a flag stone covering, with a hole large enough for a man to enter, secured by a removable iron cover. The silt collected in these basins, should be removed often enough to prevent their overflow, and discharge of silt into the sewer.

All necessary house branches, (including vacant lots), should be constructed with the street sewer, extended to the curb-stone, and a durable mark set to indicate the points where they terminate. They should be connected with their street mains at a point above the center or spring of the arch, Y's and bends being used in making the connection; and in pipe sewers, less than one foot in diameter, the connection can be made on top.* The survey and map, made by the engineer, should distinctly show not only the route of the sewer, but the exact location of the house branches. Soft spots in the bottom of trenches should be replaced by hard material: and where quick sand is met with, wood inverts should be used. In laying pipe sewers, if the sections have socket ends, or when using straight sections with ring couplings, the excavations should be enlarged at the points where the ends unite, so as to give the sections of the pipe a firm bearing between the sockets or ring couplings, or there will be danger of breakage or displacement by the weight of the earth above, forcing the pipes out of alignment.† The connecting joints should be cemented with the best hydraulic cement, and care should be taken to have the internal channel in line. This can only be done in pipes hav-

* See Plates 13 and 14.

† See Plates 2 and 5.

ing socketed ends, by coating the lower half of the socket end with cement, before inserting the end of the following pipe, and adjusting the same internally by a straight edge, of at least the length of three sections of the pipe. When properly adjusted, the upper portion of the pipe can be thoroughly cemented. Before another is added, the joint on the inside should be filled with cement, and brought to a line with the internal surface of the pipe.

This can readily be done by a wooden float, shaped to a section of the inner circle of the pipe. This will produce a smooth channel, for the flow of its fluid contents. In filling the excavation, the earth should be thoroughly tamped as fast as put in, to a point one foot above the crown of the arch. No sewer should be constructed, except under the superintendence and inspection of a competent person, who should insist that the specifications (which should be clear and explicit on all points), be carried out to the letter.

Politics should be ignored in the appointment of a sewer inspector: competency should be the requirement. If street repairs and improvements are improperly or imperfectly done, the defect can be seen by all with open eyes, who walk or ride; but defects in sewers once concealed, mischief unsuspected may follow.

The question of sub-soil, or deep drainage, as well as sewerage, is one that should demand our attention, and in cities should be considered therewith.* With sewers properly constructed, so that no escape of their contents can take place, (except at their points of discharge); it is evident that some provision must be made, for relieving the soil of an excess of earth water in many localities.

It is of importance to keep the sewerage, and deep drainage separate, as far as practicable. This can best be done, by laying lines of common drain tile on each side of the latteral sewers, and extending branches to, and around to the outside of the

* See Plates 20 and 21.

foundation walls of the buildings, and placing a few inches of clean gravel on the tile, before returning the earth.* This will except in rare cases, protect cellars from objectionable dampness. If from springs in the cellar bottom, or the building occupying the entire lot, it becomes necessary to extend the drain tile within the walls, it should be provided with a trap, located within the walls, so that it can at all times be easily inspected. If the flow of water from the cellar is not at all times sufficient to keep the trap full, it will be advisable to provide for the discharge of a portion of the roof water through it. In cellars with good cement floors, drain tile can be extended within, and around inside of the foundation walls, with but little danger from the escape of noxious gases; provided the drainage system is not united with the sewer system; except at considerable distance from the dwelling. As an additional precaution the drain tile may be ventilated in the same manner as the sewer and soil pipe, as hereafter described. Having provided good sewerage and drainage, outside of our dwellings, unless the fixtures and plumbing inside are also good, the work has been worse than useless, as an avenue for disease, and perhaps death to enter, has been provided. It is the poisonous germs contained in the accompanying vapor, (and which may not have an offensive smell), that gives to "sewer gas" its deleterious properties. Gases that would be harmless, diffused through the atmosphere outside of your dwellings, become deadly poison when introduced into the confined space of dwellings, and especially sleeping rooms.†

In connection with the question under consideration, permit us to relate our personal experience. In the early part of January 1866, three members of our family were stricken down with typhoid fever. The attending physician, Dr. Hall, expressed in a decided manner, the opinion, that the sickness was due to the unsanitary condition of the premises occupied, and that the drainage, sewerage, or plumbing, must be defective.

* See Plates 20 and 21.

† See Plate 6.

A carpenter was called in, a portion of the floor in the hall of basement removed; and in the earth below, rat holes were found, which on removal of the earth, were found to communicate with an imperfectly constructed sewer, permitting the free escape of gas, which found its way to the rooms above through cracks in the floor and openings in the partition walls. A basement heater that took its supply of air from the hall, sent the gas through its hot air flues, direct to the living and sleeping rooms above, to poison the occupants. This house was one of a block of five, and this sewer served for all the houses. The house was occupied on a lease, at a moderate rental, having more than two years to run. The landlord declined to do more than patch up the sewer, but did not object to its being done at his tenants' expense. It was so done.

The old sewer was entirely removed, and a cement pipe sewer, with joints well cemented, laid in its place. By the side of this was laid drain tile, extending to the street sewer in the manner we have heretofore described. In a residence of eight years afterwards, no difficulty from that source was experienced, and we can see no reason why, that sewer should be found any different now except that the pipe would be found harder and stronger than when laid twenty years ago. There is always danger however, from the breakage or displacement of cement or vitrified pipes used for sewer purposes, and to ensure safety iron only should be used inside of the basements, or cellars of buildings.*

Poor fixtures, material, and workmanship, will be dear at any price.

First-class material only should be used, and first class workmen employed, as on the perfection of the work the safety of the occupants depend. The pipes and fixtures should be so located, and arranged, as to be easily accessible for inspection. It is much better to have the pipes and fixtures exposed to view, at all times, than have them concealed in partition walls,

* See Plates 2 and 5.

or under floors, where they can only be reached by employing the carpenter and mason.

All soil pipes should extend above the roof, and to prevent syphonage, all traps, large and small, should be ventilated by a separate pipe of sufficient size, extended above the roof. Soil pipes should not only extend above the roof, but should be continued down, and outside of the foundation walls of the building, and terminate in a running trap.* This pipe should have united with it, inside of the trap, a vertical pipe of the same size as the soil pipe, which should extend above the surface of the ground, and have its open end protected by a hood or cowl.† This serves for the admission of fresh air, to produce an upward current in the soil pipe. Such portions of the soil pipe as are placed under ground, should receive a thick coating of Portland cement, which will effectually protect the outside from oxidation. In laying the soil pipe, angles should be avoided, by the use of curves and bends. Chimney ventilation is in some cases resorted to. This is carried out by continuing a branch from the soil pipe up through, and above the top of a chimney flue.‡

Oakum and lead should be used in making the joints, which should be thoroughly calked. When the work is completed the same should be thoroughly tested. This can best be done by plugging all the openings below the roof, and filling the pipe with water, or by pouring a small quantity of oil of peppermint into the pipe, followed by two or three pailsful of hot water, and closing the opening in the pipe, when any defect in the pipe, or its joints, will be detected by odor of the peppermint.

Examine closely the closets offered you, before selecting one.

Do not be captivated by a name, or you may be afterwards forcibly reminded of the couplet, "What's in a name? that which we call a rose, by any other name would smell as sweet."‖ All other conditions being equal, closets with separate flushing

* See Plates 14, 17 and 18.
† See Plate 17.
‡ See Plate 18.
‖ See Plate 3.

tanks are to be preferred; as with such an arrangement, danger from contamination of the water in the supply pipe, by diminished pressure in the street mains, is avoided. Select basins having large discharge and overflow orifices, and you will escape damage to ceilings by overflowing basins.

Trap baths and basins, independent of each other.* Avoid carrying water pipes up, or along outside walls, unless you desire the services of a plumber with every recurrence of zero weather. Place lead sinks under all closets, basins and bath tubs, and extend a pipe from the same to the basement or cellar, with its open end exposed, that leakage may be detected. Have stop cocks with handles, put on the supply pipes, so that the water can be shut off at any moment, without going to the cellar, hunting for a wrench, or sending for a plumber. If your work is to be done by contract, have your specifications as full and perfect in every detail, as they can be made; be prepared to pay a fair price for good work, and do not accept poor work or material at any price. If in the progress of the work changes are suggested, be satisfied that the change is an improvement before you adopt it. Remember that pipe, wrenches, a man, a boy helper, and five dollars per day, will not always ensure good work. Inspect the work as it progresses; see that all the pipes, large and small, are properly supported, and all joints water and gas tight. Do not suffer any portion of the work to be concealed from view until it is carefully and thoroughly examined. If you doubt your ability to decide the question, call in some one who has had more experience. In conclusion, permit us to say, if you are satisfied from your own experience, and the reported experience of others, that the drainage, sewerage and plumbing of this city are not what they should be, and that the health of yourself, your family, and the health of your neighbors, "the public," will be benefitted by improving the same, unite with them in an earnest effort to make it what it should be.

* See plate 14.

APPENDIX.

APPENDIX.

In preparing the preceding paper read before the "Historical Society," it became necessary, for a proper understanding of the sewer system of this city, to examine the records of the village and city. In doing so, brief extracts were made from the records, which at the conclusion of the investigation were found to be too voluminous for one evening's reading—and from necessity were omitted, and are therefore now added as an appendix to complete the history to this time.

July 21, 1856, $459.18 the cost of Academy street sewer was ordered assessed on property benefitted.

August 23rd, $210.95 was ordered assessed on property benefitted by a sewer constructed in Pine street.

November 27th, 1856, $442.78 was ordered assessed on property benefitted by the construction of a sewer in James street.

July 13th, 1857, $155.99 was ordered collected from owners of property benefitted by a sewer in Court street.

August 10th, 1857, Jonas White having constructed a sewer from the Genesee street sewer along his property in Exchange street at a cost of $200.00, it was resolved that said Exchange property shall be credited with that amount in any assessment made for sewer construction in Exchange, that, and until said sewer is made a public work by order of the city, no person by authority of the city shall be permitted to tap said sewer without the consent of said White or the owner of said Western Exchange.

February 18th, 1858, $184.09 the cost of a sewer on Seymour street was ordered assessed, on property benefitted.

August 16th, 1858, $49.10 was ordered paid Henry Lewis, for building a sewer on East Genesee street.

June 25th, 1860, $25.00 to W. Ostrander, for Canal street sewer.

June 29th, 1863, E. H. Groot was granted permission to construct a sewer from his place on William street to the Genesee street sewer.

September 7th, 1863, $655.05 was ordered assessed on property benefitted by the West VanAnden street sewer.

May 25th, 1866, the street committee were empowered to build a sewer of stone in State street, 2 feet wide and 3 feet high. This sewer was changed to brick, but by what authority does not appear.

October 1, 1866, the committee reported the completion of sewers in Clark, Seymour and State streets. The cost of Seymour, between Washington and

Cross streets was $1,115.00, and that of Clark street, cannot be obtained from the record.

June 19th, 1867, $1,6[illegible]3.00 was ordered assessed, to pay for the branch of the Owasco street sewer.

August 12th, 1867, committee reported the completion of sewers through Fulton, Hoffman, Owasco and Lizzette streets.

December 7th, 1868, $1,013.25 ordered assessed on property benefitted by sewer from Walnut to Augustus streets.

December 28th, $497.40 the cost of sewer from Augustus street, ordered assessed.

August 9th, 1869, sewer in State street from VanAnden street to the Owasco outlet, ordered constructed of brick 2½ feet in diameter.

July 11th, 1870, the question of a sewer from the intersection of Hamilton with Burt avenue, running thence northerly to the Owasco outlet, at an estimated cost of $8,702.75 was presented, and notice of its intended construction ordered published. August 15th, remonstrances against its construction were received and laid on the table.

Oct. 17th, 1870, the City Attorney was directed toattend the meetings and "see that all the proceedings in relation to sewers now before the council are regularly conducted."

February 6th, 1871, John H. Chedell and others were authorized to construct a sewer on the west side of South street.

May 15th, 1871, on the recommendation of the City Attorney, a committee of three was appointed by the Mayor, to be known as the "Committee on Drains and Sewers." This is the first time that a committee, with the special duty of looking after the drainage and sewerage of the city appears.

July 18th, 1871, the sewer committee reported that they were unable to purchase the lands required for the proposed sewer, from Hamilton avenue north to Owasco outlet, and no further action at that time appears to have been taken.

July 24th, 1871, notice was ordered published that the Council proposed altering the Genesee street sewer, west from Court street, at a cost of $5,098.50. A number of sewers proposed is observable in the records for this year. October 2d the committee reported adversely to the construction of the Genesee street sewer.

March 17th, 1872, another survey of the Genesee street sewer was ordered, and March 26th the surveyor, John S. Clark, reported its completion and the estimated cost to be $5,087.25. This report was adopted, and the publication of an order for a hearing ordered.

April 1st, 1872, the construction of a sewer in the Second Ward from intersection of Burt with Hamilton avenue north to the outlet, was declared necessary, and a survey ordered; at the same meeting the Surveyor reported that a survey had been made and the cost as estimated would be $6,390. A notice of

hearing was ordered published. April 15th, the day of hearing, no one appearing for or against its construction, action was postponed to April 22d, when no one appearing in opposition, the sewer was ordered constructed of brick, 3 feet in diameter in the clear, from Hamilton avenue to the south side of Logan street, and from that point to north line of Grover street, of stone, with walls 1½ foot thick, on hemlock plank, with an opening 9 feet square in the clear, and covered with stone not less than four inches thick. From Grover street to lands of Mary E. P. Morgan, of stone with a capacity of 12 square feet, and the committee on streets and bridges with the City Attorney and Surveyor were directed to negotiate with parties for the right of way.

June 3rd, 1872, the Mayor and City Clerk were directed to execute a contract with Isaac Sisson for the construction of the west end of the Genesee street sewer, and with George F. Little, for the east end, also with Isaac Sisson for the construction of the John street sewer.

June 24th, 1872, the survey for a sewer in Franklin street at a cost of $4,785.00 was reported by the Surveyor.

July 8th, $1,404.00 was ordered assessed on the owners of property benefitted by the construction of the west end of Genesee street sewer; and they were also directed to assess $5,507.00 the cost of a sewer constructed in Orchard street, this assessment was set aside by the council. September 16th, 1872, a new one ordered, and October 7th, the council by resolution abandoned the Orchard street sewer, and ordered a reconveyance of right of way to John Sullivan, and the destruction of a check for $500.00 returned by Sullivan.

November 8th, 1872, the street superintendent reported the completion of the Columbian Block sewer at a cost of $198.14.

A deficiency of $376.40 was reported on the Genesee street sewer, and the assessors were directed to assess that amount to make up the deficiency. The entire cost of this Genesee street sewer enlargement was $3,327.40.

The sum of $603.61 the cost of John street sewer was ordered assessed. Under the charter then in force, assessments were made preliminary to the construction of the work, and deficiencies which often occurred were made up by subsequent assessments. Under this system it is difficult to determine, when some of the sewers were constructed or what was their actual cost.

July 7th, 1872, a sewer was ordered constructed on Owasco street at an estimated cost of $2,600.00, to run from the center of Walnut to Genesee street, to be made of brick, laid in cement, and 12 inches internal diameter. At the same meeting a sewer of brick, 20 inches in diameter, beginning at intersection of Owasco street, and extending to the Owasco outlet, at an estimated cost of $1,879.00. A sewer was also ordered on Nelson street, commencing at junction of Lansing street, running thence southerly along said street, to the sewer crossing said street near Seymour street, to be made of brick 12 inches in diameter at an estimated cost of $1,583.00.

September 15th, 1873, a sewer was ordered constructed in East Genesee street from the Owasco outlet to a point near the east line of lot occupied by Orlando Lewis, to be of brick, 3 feet internal diameter, at an estimated cost of $1,750.00.

October 6th, 1873, the assessors were directed to assess $1,571.00, the estimated cost of a sewer in James street, to Clark, and through McMaster, to the Owasco outlet. November 17th, this assessment was ordered set aside, and a new one made.

An assessment of $290.91 was ordered to make up the deficiency on the John street sewer, the original assessment being $909.50.

May 4th, 1874, brick sewer ordered constructed on State street from the bridge to the north line of Seymour street, the first 50 rods to be 2 feet, in diameter, and 23 rods to be 20 inches, at an estimated cost of $2,311.00. Also a sewer ordered constructed in Seminary and Nelson streets, at a cost of $1,101.00, the portion in Seminary street, to be 8 inch cement tile, and in Nelson street, 12 inch tile. This appears to be the first tile sewer ordered.

June 9th, 1874, the contract for the construction of the Lansing, Nelson, State and Owasco streets sewers was awarded to Sidney Mead, and $1,698.00 ordered assessed for the Owasco street sewer, and $2,311.00 for the State street sewer.

July 13th, 1874, a sewer in Gaylord street was ordered at an estimated cost of $1,036.00 and amount ordered assessed.

July 20th, 1874, Mayor ordered to contract with Sidney Mead, to construct Owasco street sewer, 7 instead of 6 feet deep at a cost of $75 00.

August 3rd, 1874, the State street sewer was reported completed, and assessment for Lansing and Nelson streets sewers ordered.

February 15th, 1875, committee on drains and sewers reported that Michael Powers had completed the Fitch avenue sewer, at an expense of $353.46, and that said sewer commences 15 feet south from the north line of Fitch avenue, and 47 links from the southwest corner of Martin H. Hump's lot, thence south 1 deg. 45 min. west 1 chain and 50 links, across said avenue 51 feet, and 48 feet across land of Stephen Hoyt, thence south 50 deg. west across the lands of Henry B. Fitch, 5 chains and 10 links to the creek, as will particularly appear by map and survey, of Stephen Hoyt and Henry B. Fitch the owner, the city purchased the right of way, and assessment ordered on the same. Committee also reported a balance of $2,388.80 due Sidney Mead, for the construction of the State, Lansing, Nelson, Owasco and Gaylord street sewers.

February 24th, 1875, council ordered sewer constructed on Orchard street, commencing on Jefferson street, running thence west 26 chains 75 links to Division street, north along Division street 6 chains 50 links to Underwood street, thence westerly on Underwood street 1 chain 94 links, thence north 20 deg. 30 min. west 5 chains across private property owned by Catharine Kerwin, to the New York Central Railroad, and across said road about 1 chain and 50

links, thence northwesterly two chains to a sink hole, on the property of the Auburn Manufacturing Co. At this meeting the assessors were directed to assess on property benefitted $3,585.64, the estimated cost of a sewer in Franklin street, beginning at a point 4 rods west of west line of Fulton street, running west 27 chains, 90 links to North street, thence southerly 2 chains, 21 links to the Owasco outlet, 17 chains, 90 links from place of beginning, to be 15 inches internal diameter, 10 chains following to North street, is to be 2 feet, and 2 chains, 21 links to the outlet, 30 inches in diameter.

May 18th, 1876, George Barber was granted the privilege of constructing a private sewer from his home east on the north side of Genesee, and across it and connect with Genesee street sewer at Court street.

September 4th, sewer committee reported that the Auburn Manufacturing Co., would not consent to having the Orchard street sewer terminate in the rock opening on their premises.

July 8th, 1877, committee reported on the petition of John H. Osborne, that they did not think a sewer on Fort street a public necessity, and that a large majority of the people were opposed to it. July 16th, John H. Osborne was granted permission to construct a private sewer in Fort street, from his premises No. 14, to Genesee street sewer.

April 14, 1878, James G. Knapp was granted permission to construct a private sewer on Elizabeth street, from his house to the sewer crossing said street.

July 1st, 1878, sewer ordered constructed of stone in Orchard street, commencing at the west line of Jefferson street, thence westerly 107 rods, thence north along Division street, 1 chain 50 links, from its junction with Clark street, thence north 62½ deg. east, 1 chain 79 links across lands of Michael Carlin, to south line of Clark street, thence on the same course 1 chain 8 links to the north line of Clark street, near the west corner of Factory and Clark streets, thence north 25 deg. east, 1 chain 75 links to the Owasco outlet on the east side of the bridge. This sewer was to be 14 inches wide and 18 inches high for 79 rods west of Jefferson street, and 20 inches wide and 24 high for the balance, and walls to be 1 foot thick, and covered with gray lime stone not less than four inches thick, $3,153.80 the estimated cost was ordered assessed on owners of property benefitted, at a special meeting July 15th, 1878, the previous specifications were re-considered and amended specifications adopted, and proposals for its construction ordered advertised.

July 15th, 1878, an assessment of $3,389.45 was ordered, being the estimated cost of a sewer of brick on Franklin street, 215 44-100 rods long, 166 60-100 rods 15 inches in diameter, 40 rods 24 inches in diameter, and 8 84-100 rods 28 inches in diameter.

July 30th, 1878, the contract for the construction of the Orchard street sewer was awarded to Charles B. Koon.

September 16th, the contract for the construction of the Franklin street sewer was awarded to Sisson & Ocobock.

March 17th, 1879, the following was presented to the Council:

To the Hon. the Common Council:

The undersigned citizens, residents of the Second and Ninth wards, respectfully represent to your honorable body that we are suffering very much from want of proper sewerage. The great basin from Burt's woods (so called) along the line of the old water course, to the Owasco outlet at Genesee street bridge, has no sewer to carry off the water, and as a consequence, nearly every residence along the course named has water in the cellar. The health and comfort of the people, and the reasonable enjoyment of their property imperatively demand some relief, and we trust that your Honorable Board will take such steps speedily as will afford the necessary relief. And your petitioners will ever pray, etc. Signed by Homer N. Lockwood and forty-nine others.

In response to this the committee on drains and sewers were directed to investigate the necessity for a sewer as described in the petition presented, and report to the board with recommendations as to route, size, material, etc.

April 21st, 1879, U. A. Wright, City Surveyor, reported that he had made a survey for a sewer, beginning in the north line of Hamilton avenue, and extending to the curb on the south side of Grover street, the whole length 2,143 feet, or 129⅞ rods; the depth at Grover street to be 12½ feet below top of curb, and 9 feet 2 inches from top of curb at Logan street to bottom of sewer, and at Hamilton avenue 4 85-100 feet deep, the fall from Hamilton avenue to Logan street, being but half an inch to the rod.

June 16th, 1879, the committee on drains and sewers, reported that they had examined the question of a sewer through the great basin to Burt's woods (so called), "and find that said locality is in great and immediate need of a sewer for perfect drainage, and as a sanitary precaution against malarial, and other contagious diseases, and your committee deem it for the best interests of the property owners, in said locality that a circular brick sewer be constructed three feet six inches in diameter from the north line of Grover street to Hamilton avenue, and your committee would recommend that said sewer be put down on a line, and grade to be adopted, and determined by the Common Council, regardless of any culvert, bridge or sewer to be found on said line. Signed,

H. J. WHITE,
PATRICK E. DONNELLY.

March 5th, 1880, Council ordered a survey for a sewer from Hamilton avenue to Swift street, and report the best kind of material for such work. April 19th, 1880, the surveyor reported the survey made, and that the length would be 88 72-100 rods, and that circular or elliptic would be the best shape, not being so liable to clog up with deposited matter, but the square form will be better as the top of the sewer will be near the surface of the ground at several points,

and this form, will be less liable to injury. I therefore recommend a square stone sewer, of 3 feet inside measurement as the proper shape, material and size for the proposed sewer.

June 7th, 1880, the committee on drains and sewers, reported in favor of constructing a sewer 60 rods long in Augustus street, to connect with Anna street sewer, as shown by the survey and map presented by the surveyor. The committee did not approve, but the council adopted the survey and map of sewer from Hamilton avenue to Swift street, as being part of what is known as the Second ward sewer, and the committee were directed to examine the map of the proposed Second ward sewer, and report to the Board whether the same was complete for adoption. June 21st, 1880, sewer on Augustus street ordered constructed, and Clerk to advertise for proposals, and the City Surveyor was directed to prepare plans and specifications for the construction of a tubular brick sewer in the Second ward on the route adopted.

August 2nd, 1880, City Attorney reported that he had seen a number of the property owners along the route of the proposed Second ward sewer, as to the right of way, and no definite answers have been obtained, except some of those seen, announce their determination of fighting from the start.

September 6th, 1880, a remonstrance signed by forty tax-payers of North street, against building a sewer in that street, for the reason :

First—The taxes for this year have been very burdensome and as much as we could bear.

Second—That many have private sewers built at our own expense, which afford abundant sewerage for our private use.

Third—It would put us to additional expense, and to more of us useless expense, and great damage to put drains from our premises to connect with the public sewer when built.

August 23rd, 1880, Augustus street sewer was reported completed and $629.00 the cost was ordered assessed, on property benefitted.

February 7th, 1881, Health Officer Dr. John Gerin, reported to the Council that the city was without proper and adequate sewerage, and recommended that "a topographic sanitary survey of the city be made and that a uniform and connected plan be adopted for the sewerage and drainage of the city," and recommended the adoption of the following resolution :

"*Resolved*, That the Common Council of the City of Auburn, respectfully petition the Legislature of the State to authorize the State Board of Health to appoint a sanitary engineer to the end that uniformly proper and competent surveys and plans of drainage and sewerage may thereby be obtained by all cities and towns which may need them." In this connection the Doctor discussed the importance of providing a supply of good drinking water, and the danger from the use of water from wells in city houses connected with cess-pools and privy vaults, and recommended that the Water Company be required to extend

their mains to deep water in the lake." Dr. Dimon being present, endorsed the views of Dr. Gerin.

March 21st, 1881, the committee on drains and sewers reported that they had met the lot owners, along the line of the Second ward sewer, and conferred with them in regard to obtaining the right of way for the same, that a portion would give the right, and a portion sell, but at what price, the committee could not ascertain, and asked for further time for the matter.

It had become evident that, difficulties would arise, and perhaps lead to serious complications, if the construction of the sewer was attempted under the existing charter. By the advice of competent lawyers, a bill was drawn, and on the 20th of April, 1881, the Common Council adopted a proposed act providing for the construction of a sewer in the Second ward, and asked our Senator and Members of Assembly, to procure the passage of the same at the earliest possible moment. This act was duly passed by the Legislature, and embraced as a sewer district all territory within the water-shed of the valley, in which the sewer was located, a large portion of the route being over private property. By a map duly recorded in the County Clerk's office, the district to be assessed was duly defined and the route of the sewer laid down.

May 9th, 1881, the City Surveyor reported survey and map of sewer on Lewis street, 14 chains and 75 links, to begin 2 chains 57 links from Genesee street, and run to the Franklin street sewer, at an estimated cost of $930.00 ; also one in Lincoln street, 709½ feet long, to intersect the Second ward sewer, at a cost of $611.00. July 7th, 1881, the City Attorney reported to the Council that the deeds of right of way had been obtained of all the property owners on the line of the proposed Second ward sewer. At this meeting the City Treasurer reported that there was an apparent balance in the treasury of $514.13 to the contingent fund, but the amount of the Council's audit to C. Wheeler, Jr., to pay for right of way for the Second ward sewer, had not been paid, thus leaving the fund in reality overdrawn to the amount of $886.87. July 25th, specifications and plans for the Second ward sewer were adopted. The sewer was divided into 4 sections.

No. 1. Extended from the outlet in Genesee street, to the north line of Lincoln street, a distance of 647½ feet or 39½ rods.

No. 2. From the north line of Lincoln, to the north line of Grover street, 568 92-100 feet or 34 48-100 rods.

No. 3. From the north line of Grover, to the south face of the man-hole in Hamilton avenue, 2,251 92-100 feet or 136 48-100 rods.

No. 4. From the center of Hamilton avenue to the south line of Swift street 1,549 38-100 feet or 93 9-10 rods.

The two first sections were to be built of stone with an internal diameter of 3 feet wide and 4 feet high. Section No. 3, was to be of brick, circular, 3½ feet internal diameter. Section No. 4, of brick, circular, 2½ feet internal

diameter. The Clerk was directed to advertise for proposals, for the construction of the Second ward, and the Seymour street sewers.

At the meeting August 24th, 1881, the contract for the construction of the first section of the Second ward sewer was awarded to H. S. C. Sweeting, at $1,600.00 ; and the second, third and fourth sections, John O. Smith, at $18,447.00 or a total of $20,047.00, and the Mayor and Clerk ordered to enter into a contract with the parties named. August 31st, the draft of a contract with the parties was presented to the Council, by it approved, and the Mayor and Clerk directed to execute it. September 5th, 1881, the Council fixed the cost of the Second ward sewer at $23,000.00, and directed the assessors to assess the benefits on the lands and premises within the boundaries described in Chapter 210, laws of 1881, entitled an act providing for the construction of a sewer in the City of Auburn, and the act amendatory thereof.

September 6th, 1881, the Lewis street sewer was reported completed, at a cost of $961.25, and the Assessors ordered to assess the same on property benefitted, and the Seymour street sewer completed at a cost of $386.40 was also ordered assessed on property owners according to benefit ; and the Lincoln street sewer at a cost of $579.48, was also ordered assessed ; and a sewer ordered constructed on Washington street, to begin 1 chain and 95 links north of the north line of Genesee street, thence north in the center of the 17 chains to a point 20 feet south of the north line of Clark street, thence westerly about 8 rods along the present sewer, in accordance with map and survey on file in the Clerk's office, and an advertisement for proposals for construction of the same ordered.

September 10th, Robert Tate appointed inspector of the Second Ward sewer at $2.00 per day, as his compensation. September 19th, Committee on Drains and Sewers reported that they had notified Robert Tate of his appointment, and instructed him to be on duty at 7 A. M. and remain until 6 P. M., and to allow no deviation from the specifications in its construction. At the same meeting the Mayor and Clerk were directed to enter into a contract with Sisson & Ocobock for the construction of the Washington street sewer in accordance with their bid. October 3rd, 1881, the Mayor reported a defect in the bid which was for 10-inch pipe, while the specification was for 12-inch, which made it necessary to advertise for new proposals. On June 3rd, 1882, the Clerk was directed to advertise anew for proposals for construction of the Washington street sewer.

July 3rd, 1882, Clerk directed to advertise for proposals for constructing a sewer in South and Grover streets. This sewer was to begin at a point in South street where a private sewer crossed that street, and extended into Grover street and connected with the Second Ward sewer.

July 12th, at a special meeting, an attempt was made to displace Robert Tate as Inspector of the Second Ward sewer, by declaring the place vacant. Fortu-

nately some one obtained a knowledge of the object of the special meeting, and placed in the hands of the Mayor a remonstrance numerously signed by the property owners along the line of the sewer, with the request that the same be presented if the motion was made. The remonstrance produced the withdrawal of the motion and Mr. Tate remained Inspector of the Second Ward sewer until its completion.

July 17th, 1882, remonstrances numerously signed were presented against the construction of sewers in Elizabeth and Grover and Logan streets.

September 14th, 1882, the Mayor and Clerk were directed to enter into a contract with John O. Smith for the construction of the Logan street sewer, and with L. G. Perkins for the Grover and South street sewers.

October 24th, 1882, Robert Tate reported the entire cost of the Second Ward sewer to be $23,932.91. The length of the second, third and fourth sections of the Second ward sewer, as reported by Surveyor Wright, was 4,475 46-100 feet or 105 24-100 in excess of the original survey.

September 12th, 1881, the assessors were directed to assess cost of sewer constructed on Seymour between State and Cross streets, the amount being $386.40. At the same meeting they were directed to assess $961.25, the cost of Lewis street sewer between East Genesee and Franklin streets; and at the same meeting $579.48, the cost of Lincoln street sewer, between Mechanic and the second Ward Sewer.

June 19th, 1882, sewer ordered on Washington street, commencing two chains north of Genesee street, and running to and connecting with a sewer in Clark street.

September 14th, 1882, Mayor and City Clerk ordered to enter into a contract with John O. Smith, for the construction of a sewer in Logan street. And at the same meeting were ordered to enter into a contract with L. G. Perkins, for the construction of a sewer in South and Grover streets.

November 13th, 1882, $600.49, the cost of South and Grover street sewer was ordered assessed.

November 13th, 1882: $1,660.73, the cost of Washington street sewer, was ordered assessed.

December 18th, 1882, $1,116.28, the cost of Logan street sewer, was ordered assessed.

February 25th, 1884, $1,236,50, the cost of Frances street sewer, was ordered assessed, and at the same date $1,160.00, the cost of Grover street sewer was ordered assessed.

March 10th, 1884, $1,606.56, the cost of Sheridan and Walnut street sewers, was ordered assessed; also $3,517.40, the cost of South street, Hamilton avenue and MacDougall street sewers. The four last sewers were constructed in 1883, though the assessment was ordered in 1884.

July 10, 1884, $1,236.00, the cost of Wall street sewer was ordered assessed.

May 5th, 1884, contract for the construction of a sewer in Franklin street, east from the summit, to connect with Elm street sewer.

August 20th, 1884, $1,603.09, the cost of Franklin street sewer, east, was ordered assessed.

June 2d, 1884, Mayor and City Clerk directed to contract with Jeremiah Sullivan for the construction of the Seymour street sewer.

August 18th, 1884: $1,700.00, the cost of Seymour street sewer, was ordered assessed.

June 12th, 1884, Mayor and Clerk ordered to enter into contract with Patrick Goff for the construction of the Washington, Barber, Coon and West Water street sewers.

July 7th, 1884, contract ordered entered into with Jeremiah Sullivan for the construction of the Capitol street sewer.

August 25th, 1884, $1,011.67, the cost of Capitol street sewer, was ordered assessed, and at the same date $1,603.09, the cost of Washington, Barber, Coon and West Water street sewers was ordered assessed.

September 1st, 1884, Mayor and Clerk ordered to contract with Luther G. Perkins for the construction of the Elizabeth street sewer.

November 30, 1884, $558.75, the cost of Elizabeth street sewer was ordered assessed.

September 8th, 1884, the construction of a sewer in Genesee street from the Owasco outlet to cross walk near No. 85 Genesee street, ordered, and contract ordered made with L. G. Perkins for the construction of the same.

January 5th, 1885, $3,470.70, the cost of Genesee street sewer, was ordered assessed.

December 9th, 1885, $686.05, the cost of Cayuga street sewer, was ordered assessed.

July 27th, 1886, $428.73, the cost of Elizabeth street sewer, was ordered assessed.

August 7th, 1886, $530.91, the cost of Derby avenue sewer, was ordered assessed; and $6,856.86, the cost of Jefferson, Clark and Genesee street sewer was ordered assessed; also $696.55, the cost of sewer in Myrtle avenue.

And 1886, the Aurelius avenue and Van Anden street sewer was reported completed at a cost of $5,061.91, which was ordered assessed on the 6th day of December, 1886.

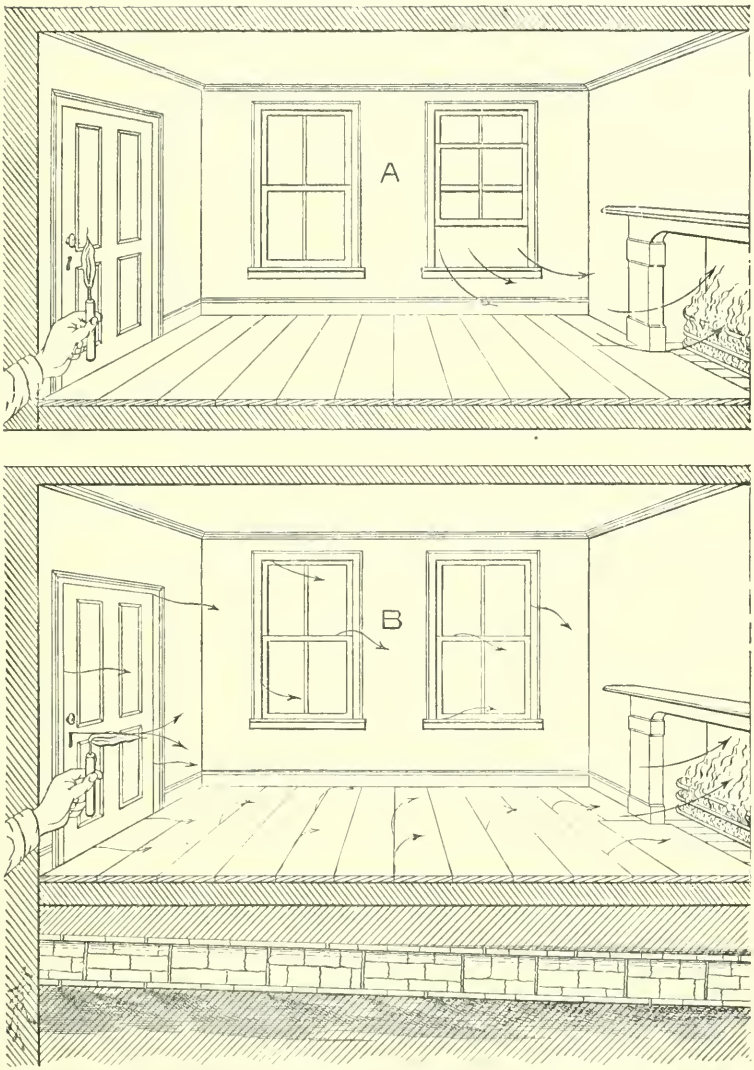


PLATE 1. VENTILATION AND STONE SEWER

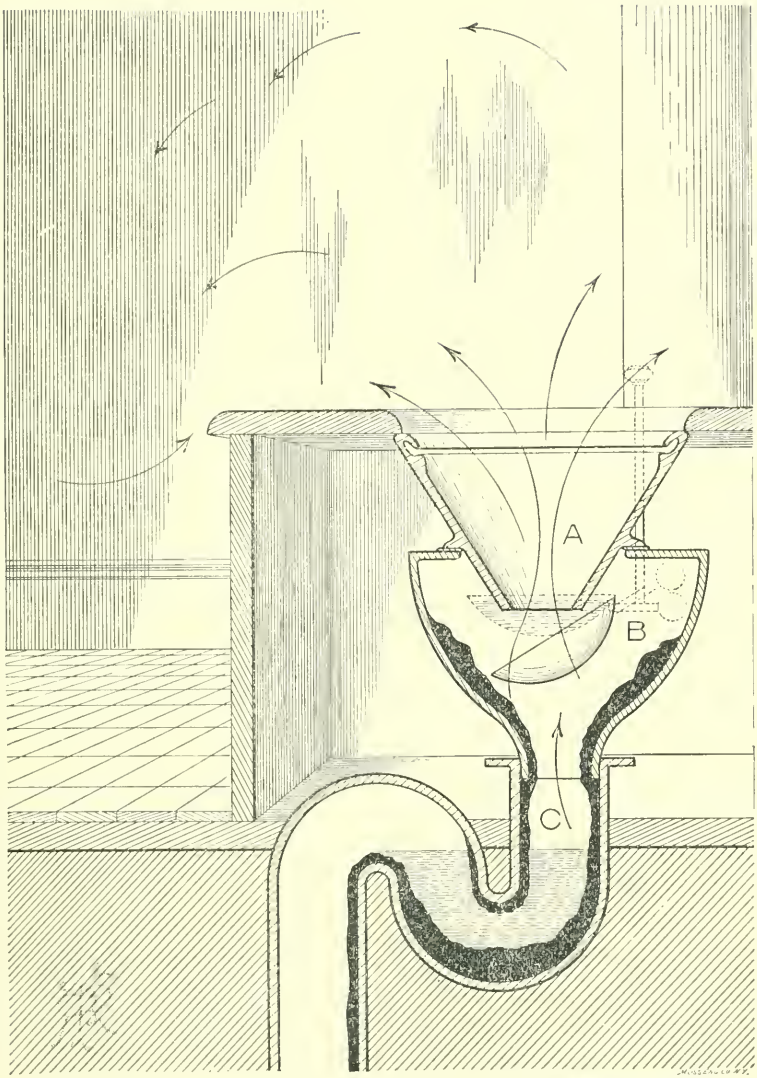


PLATE 3 — FILTHY PAN CLOSET

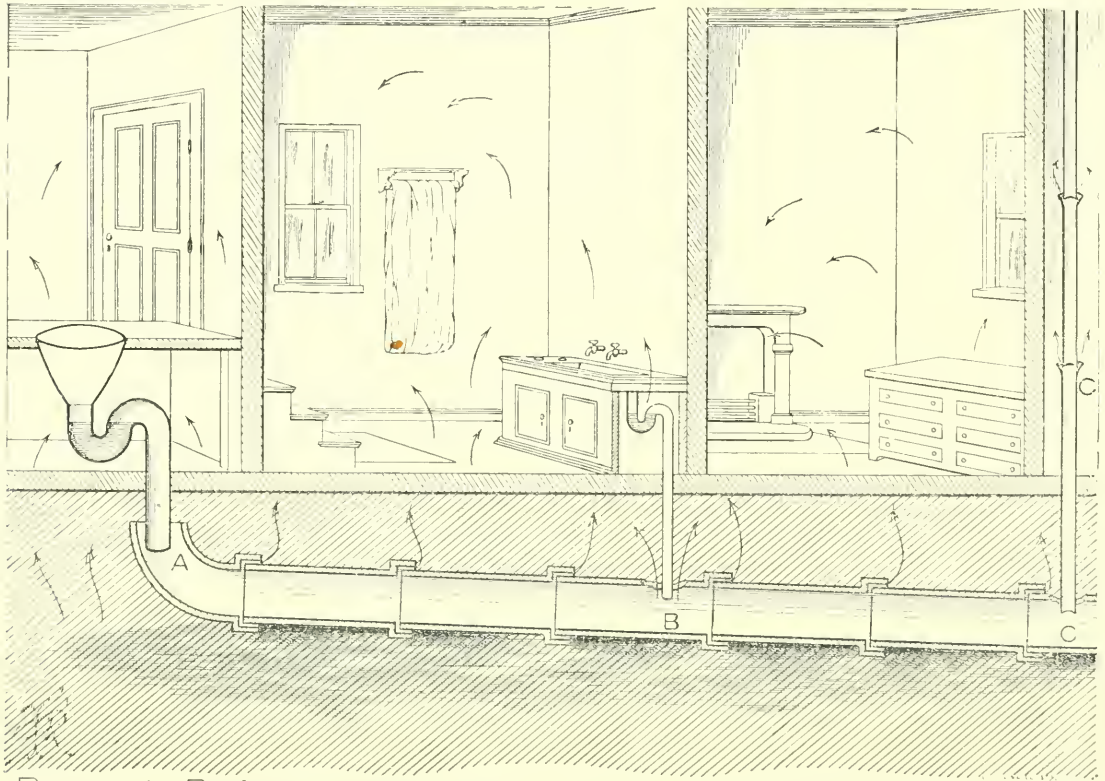


PLATE 4– REVERSED SECTIONS, UNCEMENTED JOINTS AND CONNECTIONS &c.

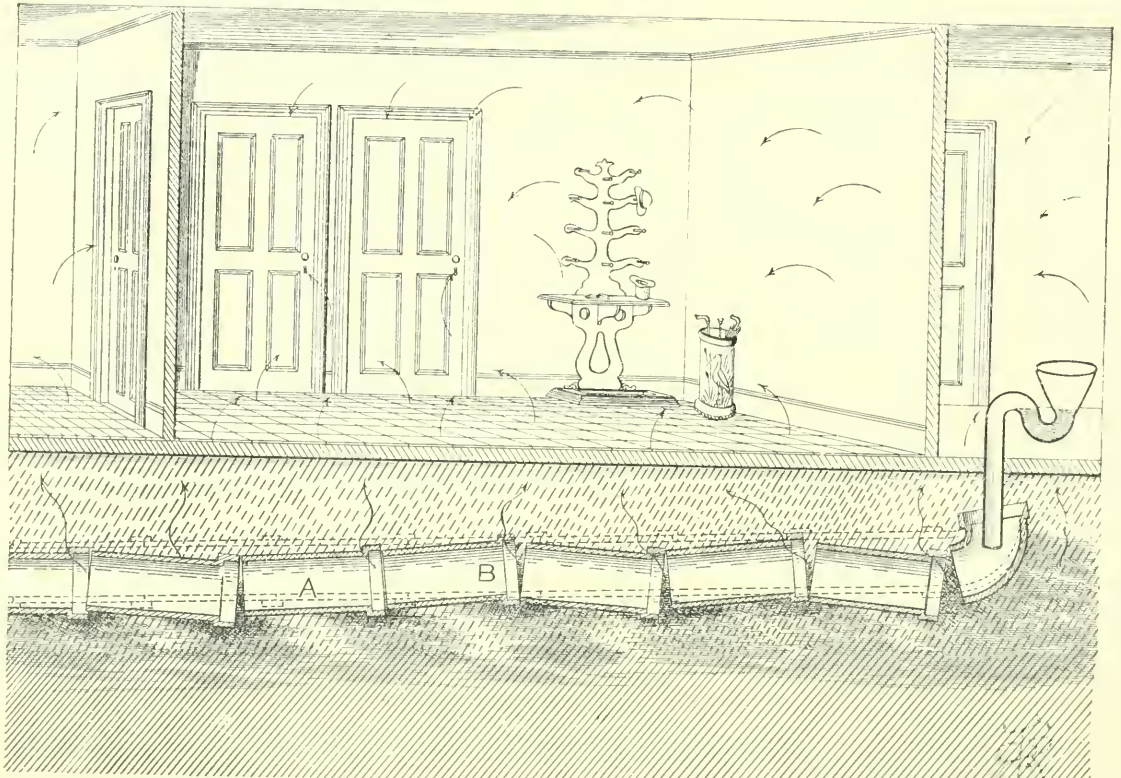


PLATE 5.—A BAD JOB ON BAD GROUND

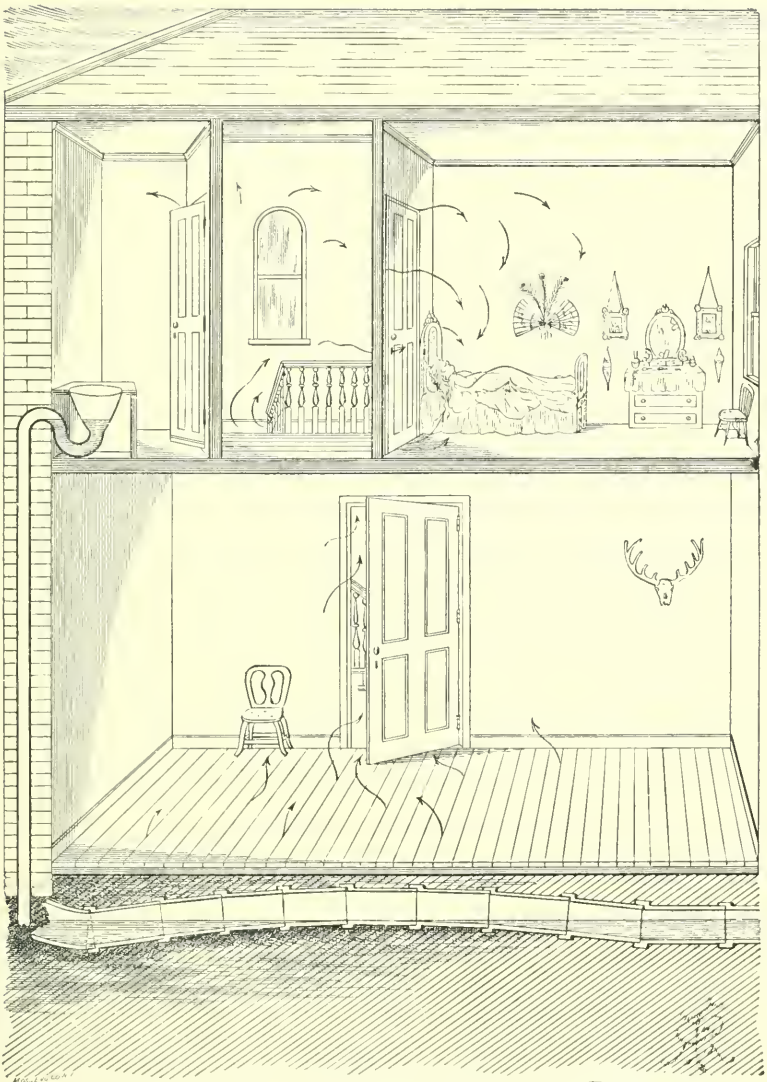


PLATE 6—HOW WE INHALE SEWER GAS

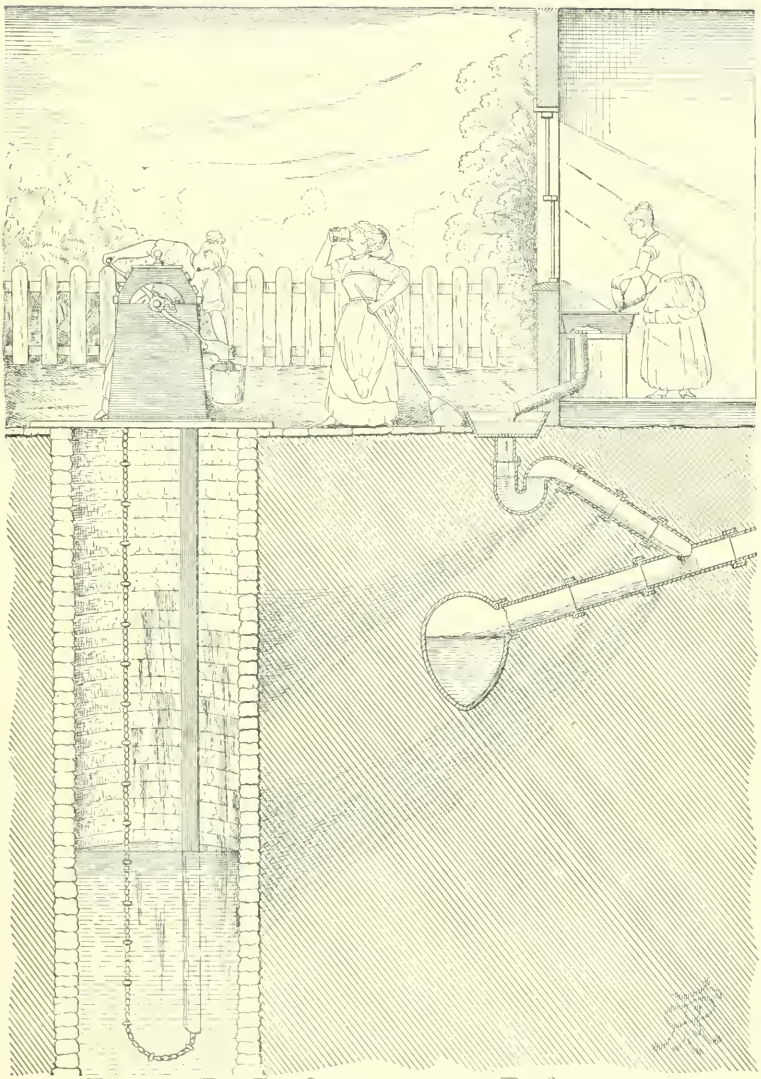


PLATE 7— SEWERAGE AS A BEVERAGE.

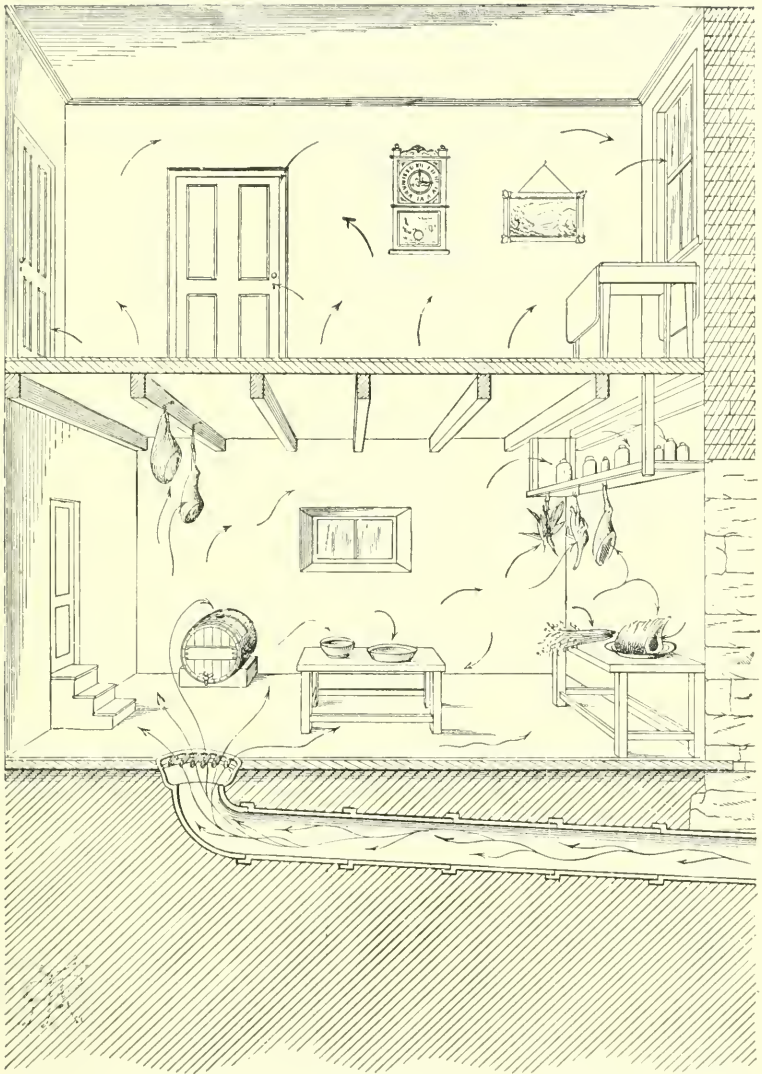


PLATE 8—EFFECT OF SEWER GAS ON THE PROVISIONS.

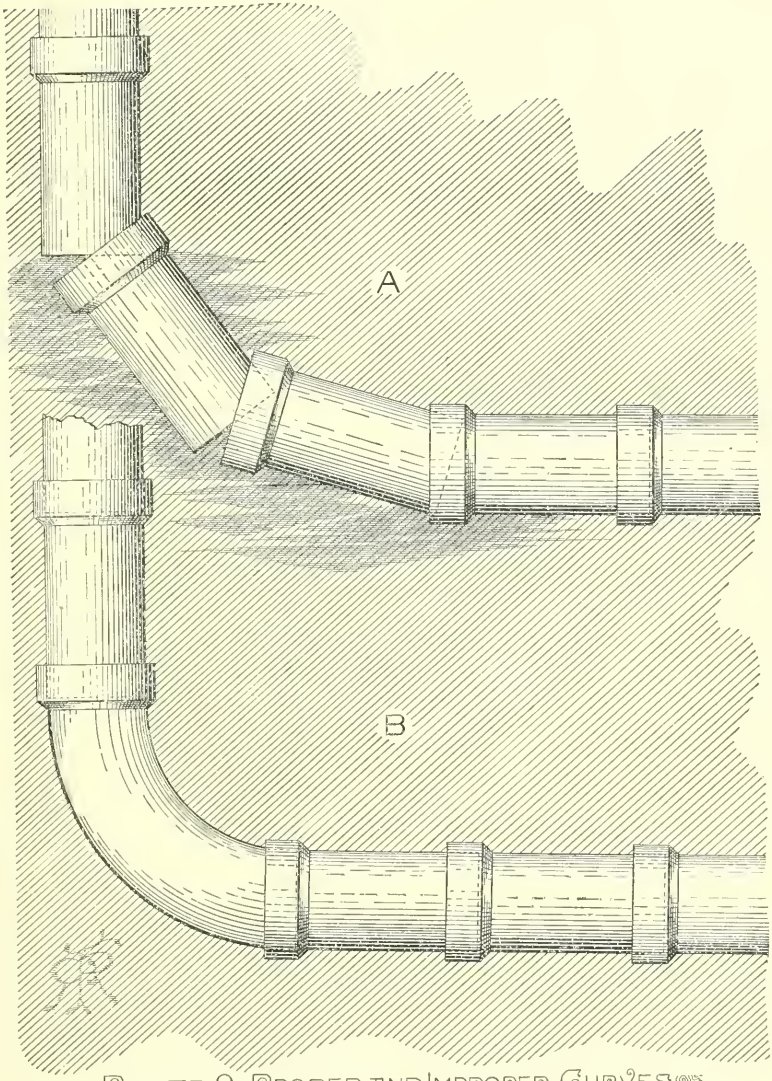


PLATE 9—PROPER AND IMPROPER CURVES

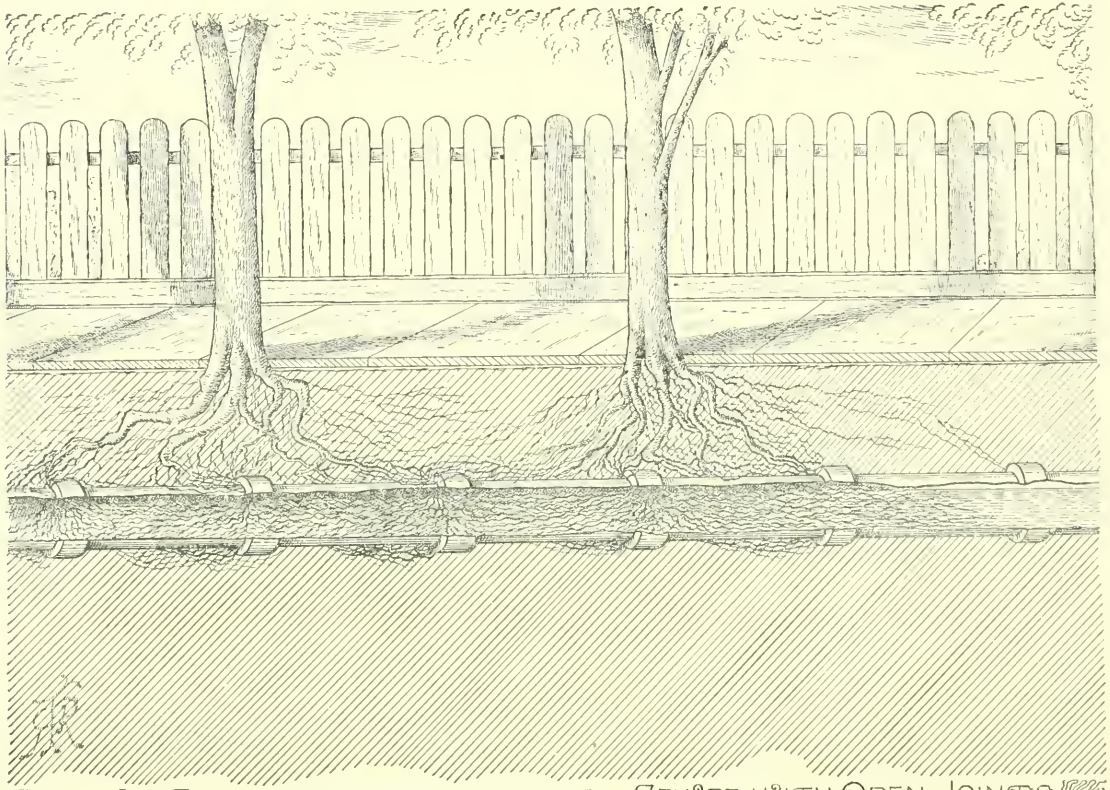


PLATE 10.—ROOT FIBRES SEEKING MOISTURE — SEWER WITH OPEN JOINTS

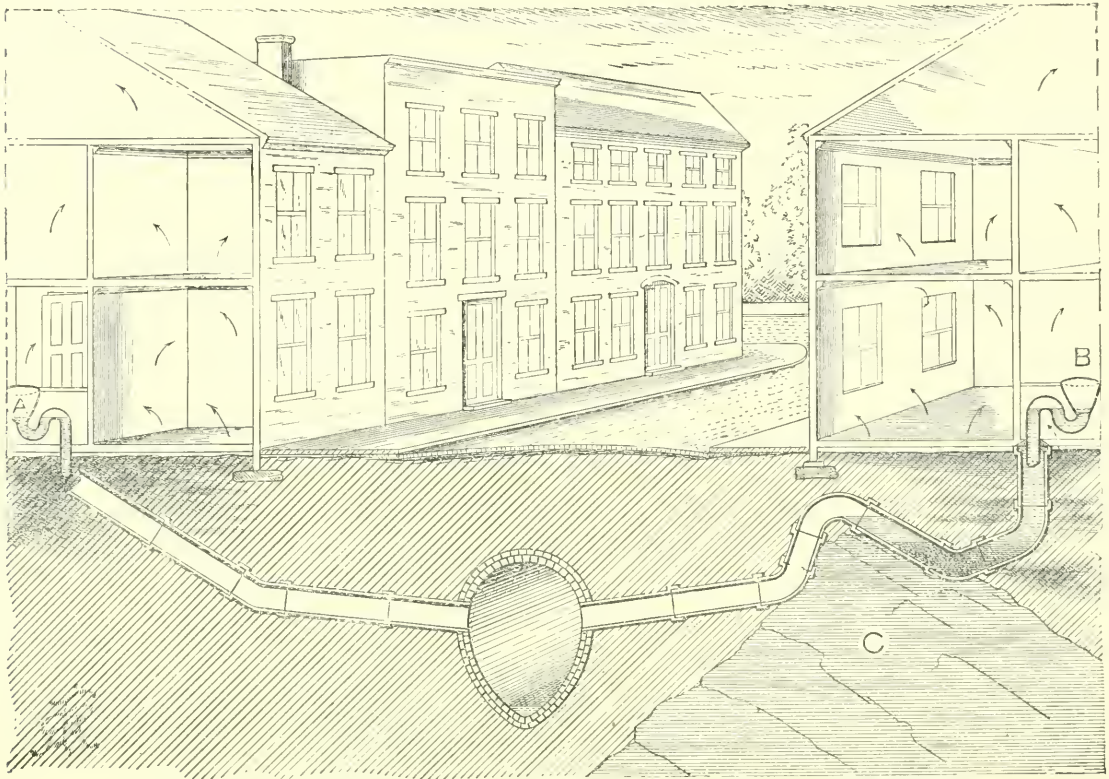


PLATE II_PENURIOUSNESS AND ITS RESULT

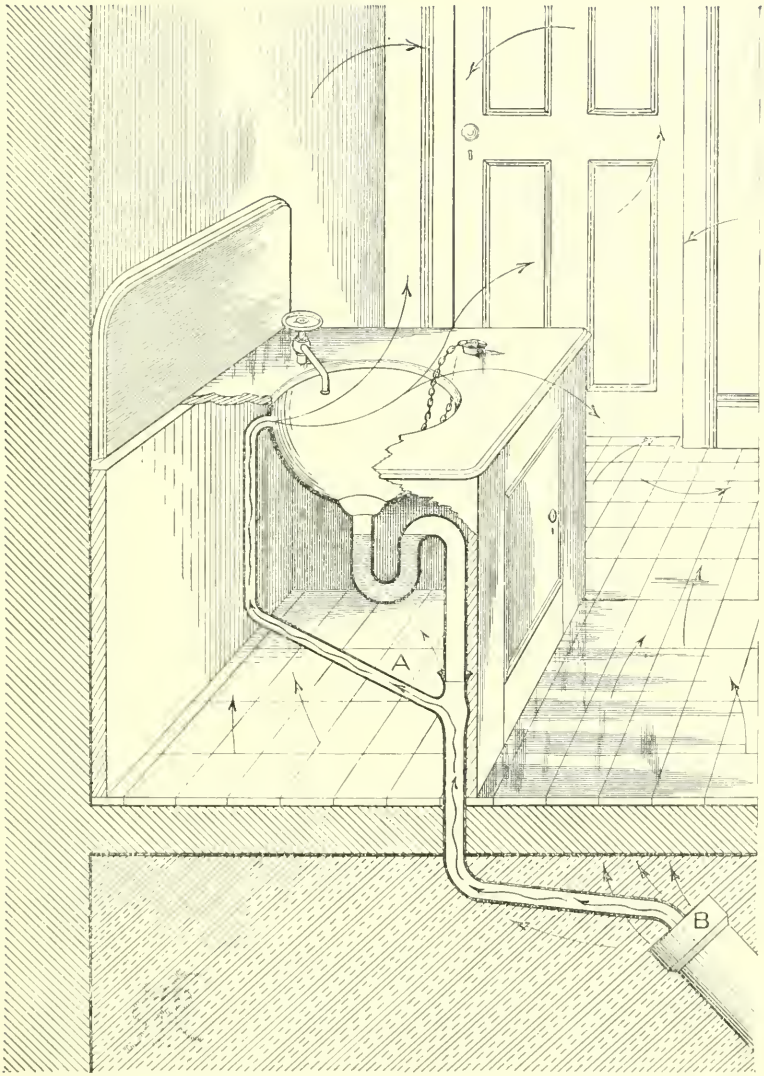


PLATE 12.—RESULT OF OVERFLOW WITHOUT TRAP.

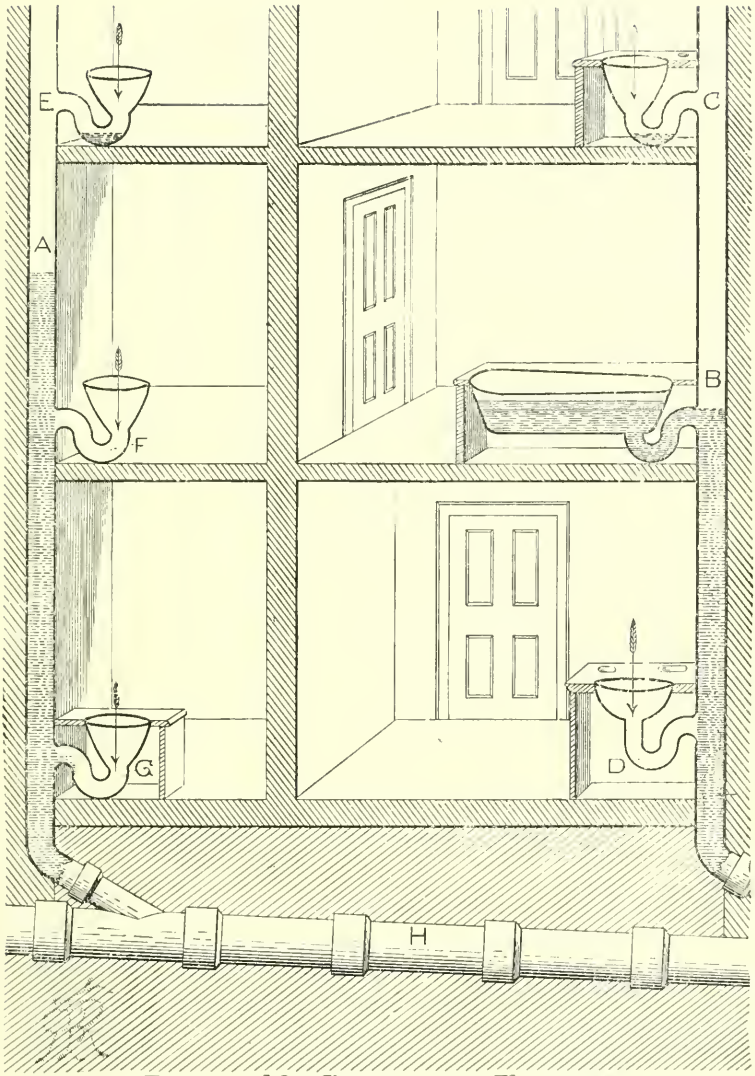


PLATE 13_SIPHONING TRAPS

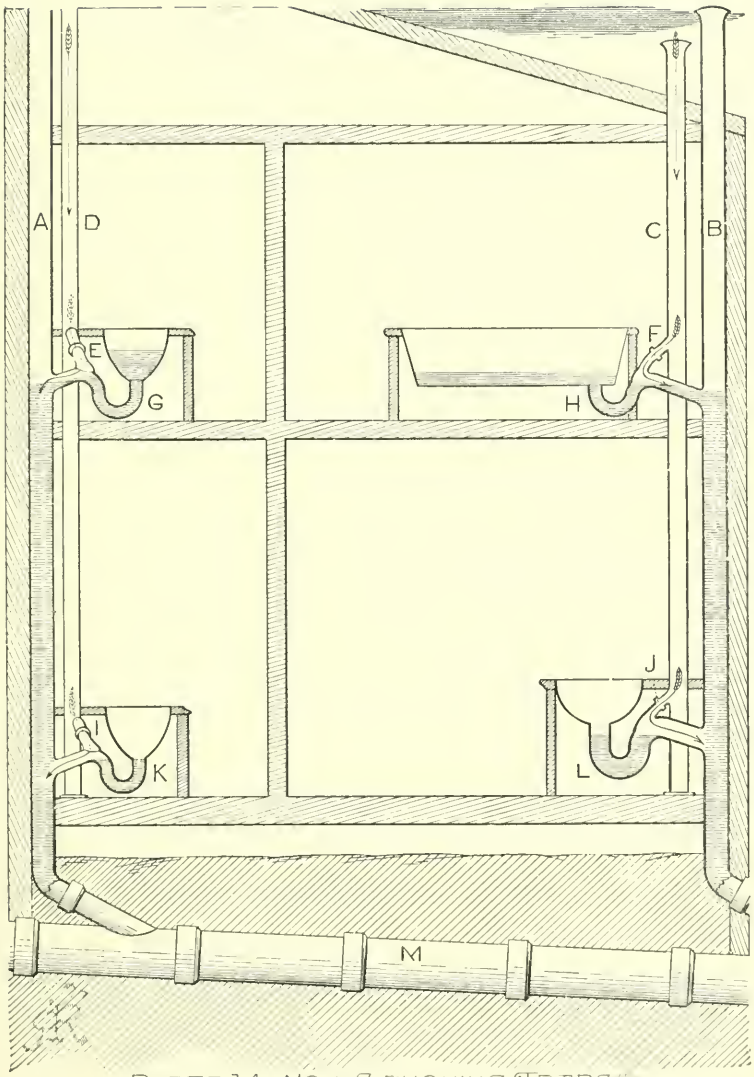


PLATE 14_NON-SIPHONING TRAPS.

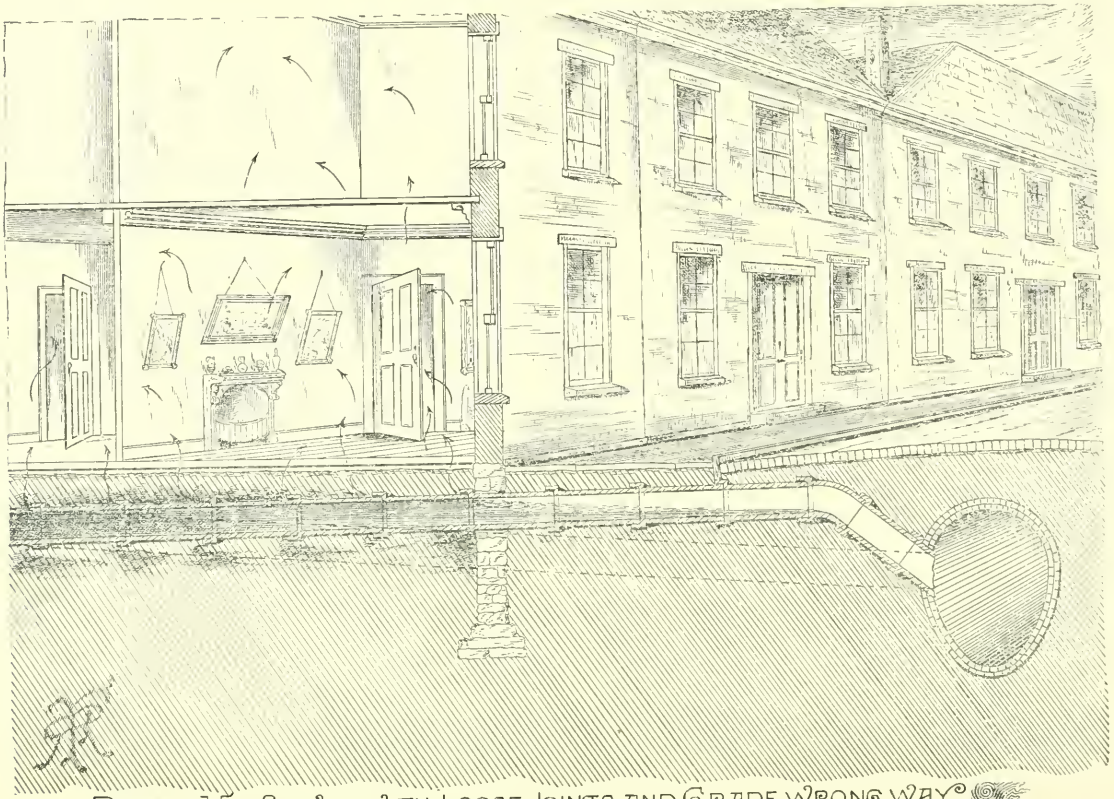


PLATE 15_ SEWER WITH LOOSE JOINTS AND GRADE WRONG WAY

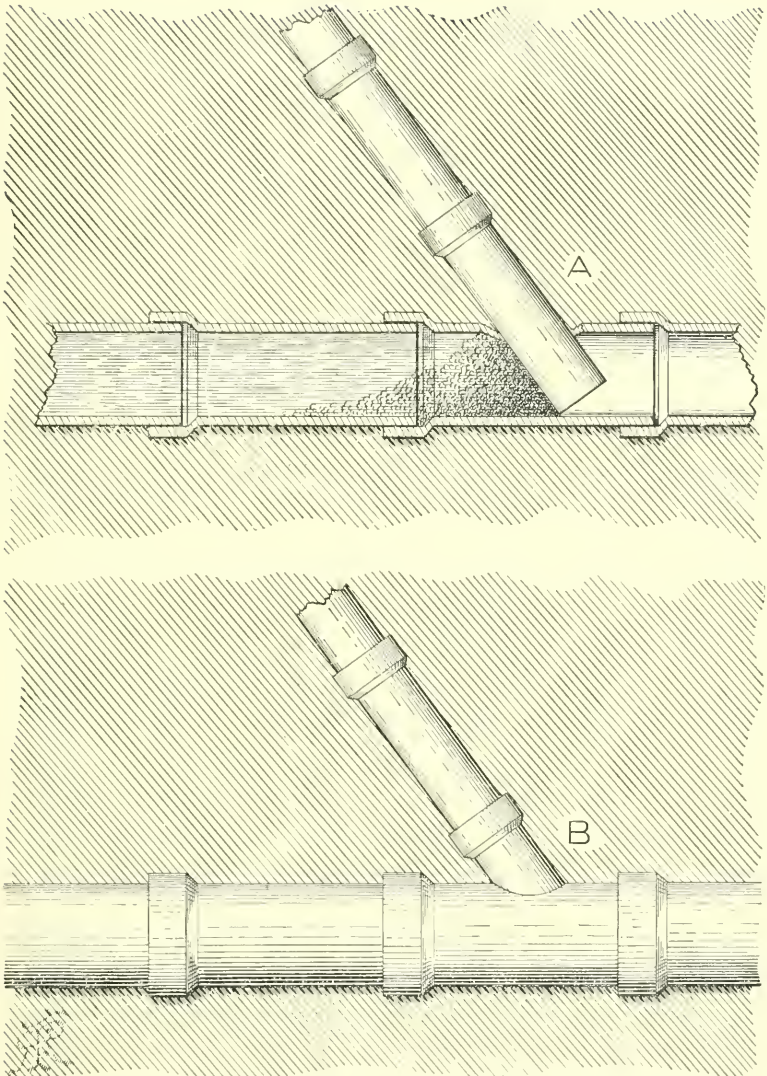


PLATE 16.-PROPER & IMPROPER CONNECTIONS WITH MAIN SEWER

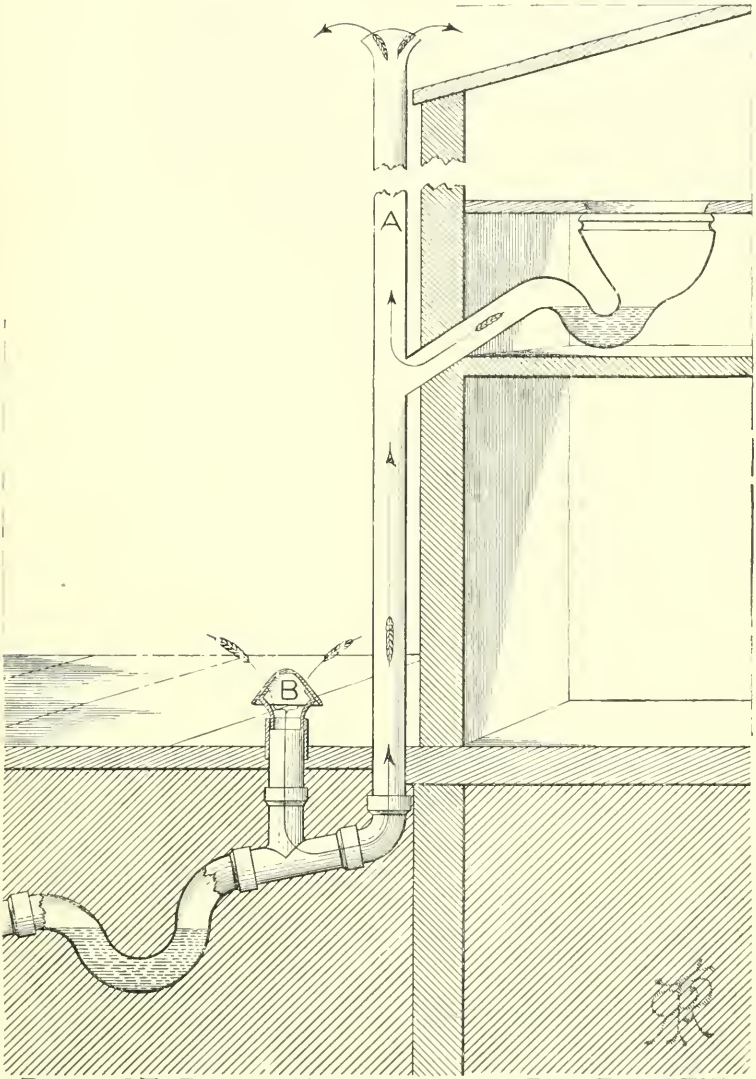


PLATE 17. PROPER VENTILATION OF SOIL PIPE

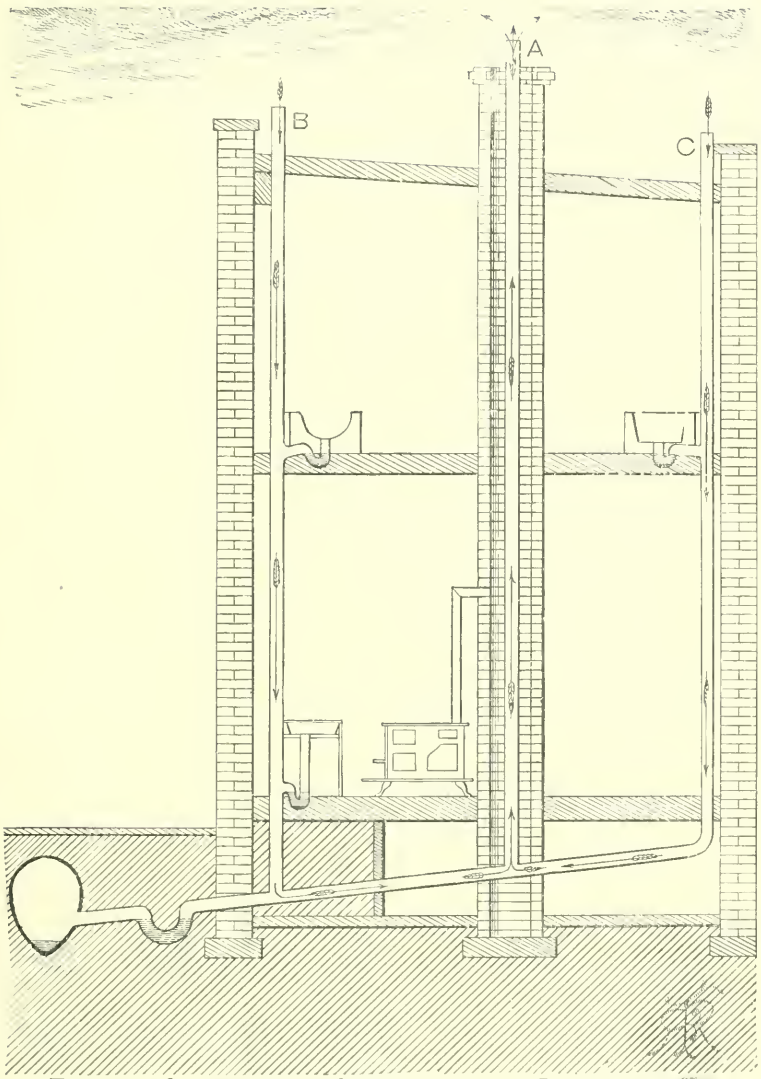


PLATE 18 _ CHIMNEY VENTILATION OF SOIL PIPES

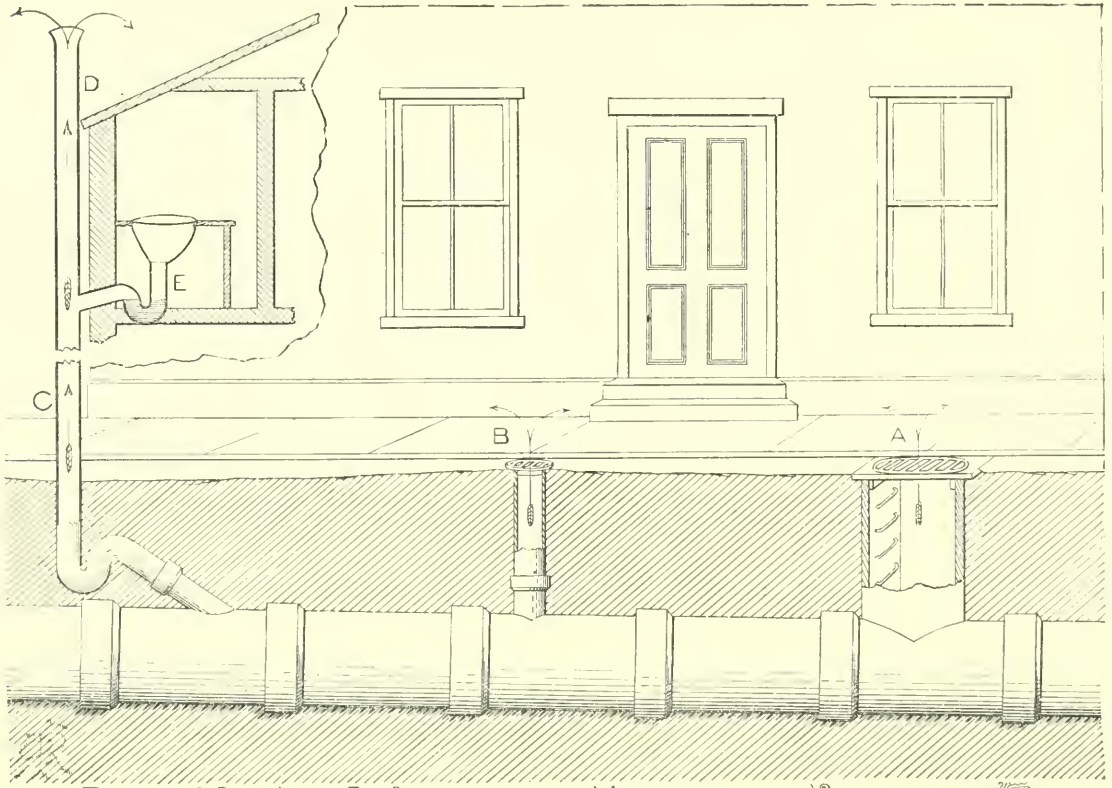


PLATE 19 – MAIN SEWER SHOWING MAN HOLE AND VENTILATOR

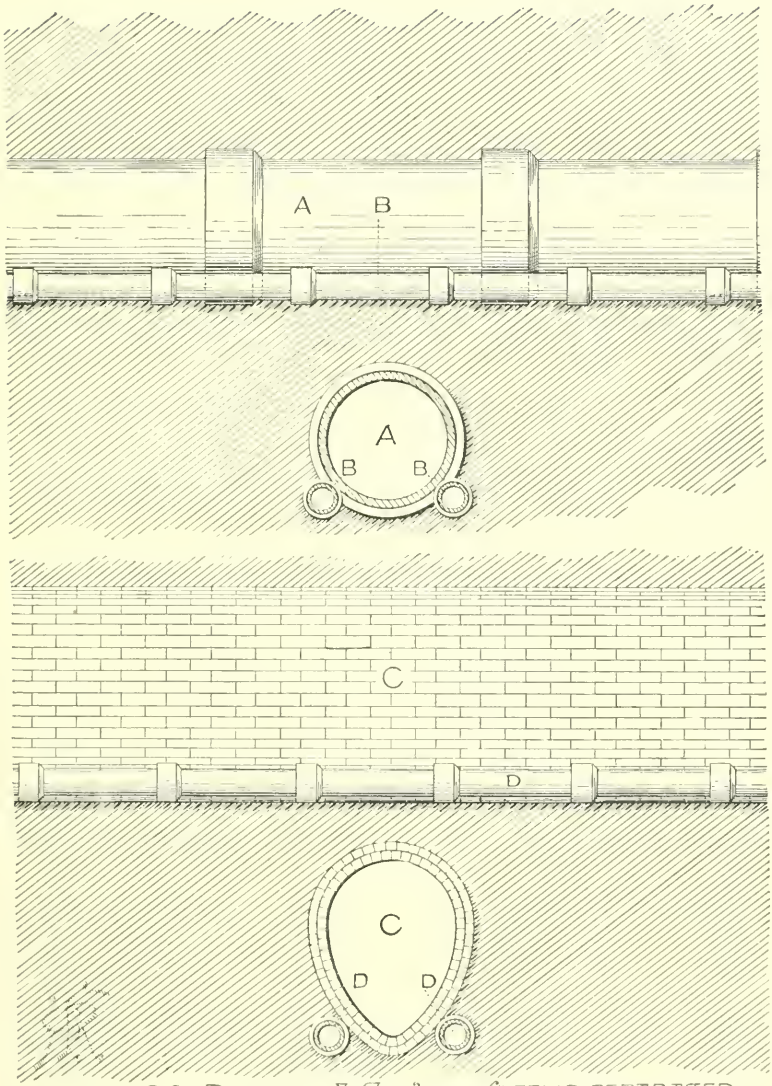


PLATE 20_DRAINAGE & SEWER SYSTEMS SEPARATED.

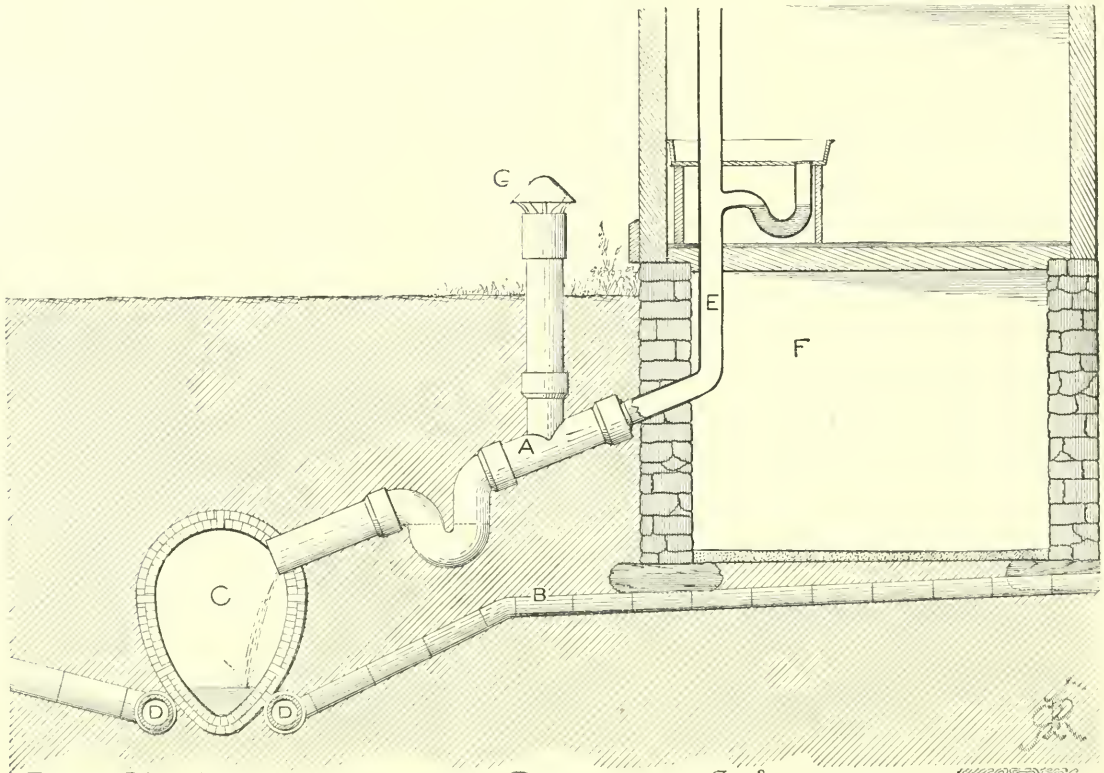


PLATE 21.—UTILITY OF SEPARATED DRAINAGE AND SEWER SYSTEMS

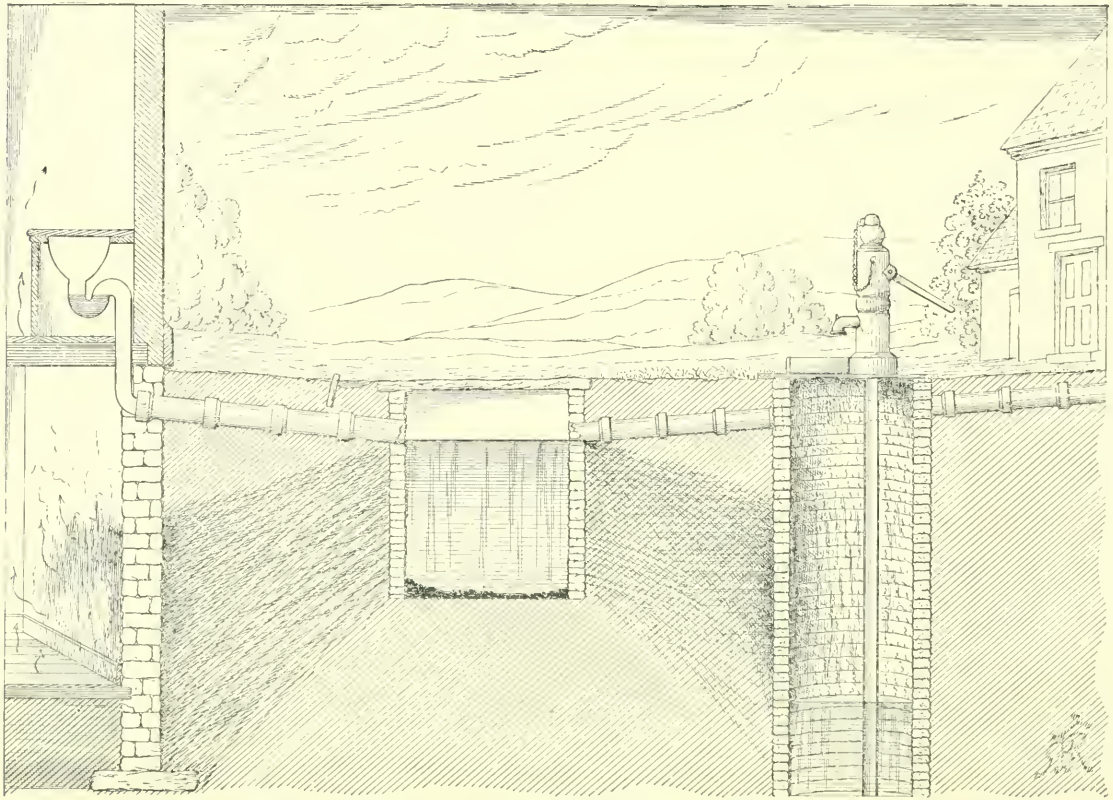


PLATE 22 — DANGERS OF THE CESS-POOL

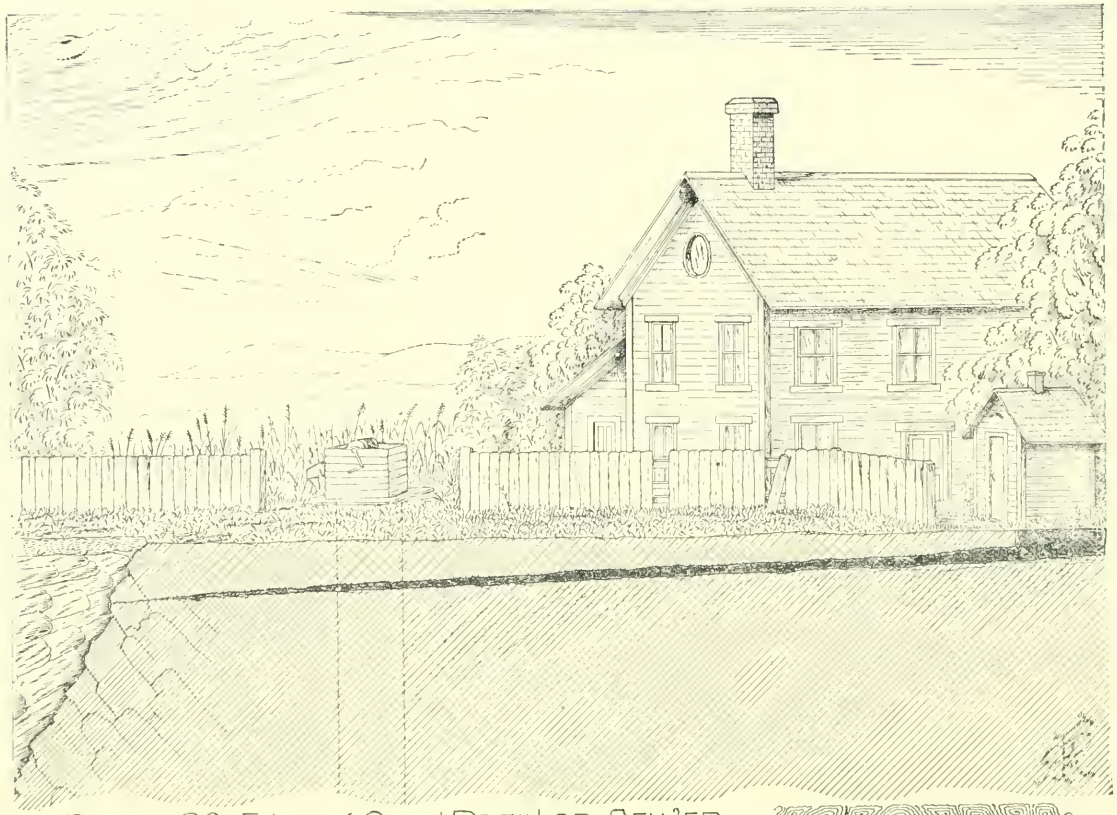


PLATE 23_FILTHY OPEN DRAIN OR SEWER.

"HOBBIES,"

AND SOME WHICH WE HAVE RIDDEN IN 1886.

An address delivered before the Cayuga County Historical Society,

February 8, 1887, by the President,

WILLIAM H. SEWARD.

"HOBBIES,"

AND SOME WHICH WE HAVE RIDDEN IN 1886.

Webster defines the word "hobby" thus: "Any favorite object which a person pursues with zeal or delight." Some one has said, "Every man has his hobby," and I presume he intended to add, every woman has her hobby also. But, I take issue at once with this very sweeping statement, asserting emphatically that this is a mistaken notion, in proof of which I point to the many people to be found in every community, who to all outward appearance at least, have no hobby, although it might be better in some cases if they had. Such tacitly accept the situation, whatever it happens to be at the time, seeming to have no special aim or ambition in life, unless it be to make themselves comfortable, and to be let alone while doing it. These are always good law-abiding citizens, usually quite ready to criticise or denounce the bad acts or mistakes of others, but they are in no sense progressive, and contribute but little to the general spirit of public enterprise or progress. True, some of our hobbies are visionary or impolitic, or both, and some are positively bad, and hurtful, alike against private and public interests; yet, the bad aims of men are far less in number than the good ones, and much more likely to fail when once they become exposed to the light of public investigation and criticism. True, also comparatively few of the good or harmless

aims ever reach the full measure of their projector's expectation, nevertheless, they at least, serve to keep the community from falling into apathy, and stagnation, and are continually stirring up the people, evoking healthful discussion, and expression of opinion, and like the action of the winds upon still water, they agitate and purify it.

DANGEROUS AND MISGUIDED HOBBIES.

Some hobbyists however, do exist, that we could well dispense with, and whom the world would be far better off without. These usually found their theory, or hobby, upon utter selfishness, and a flagrant disregard of the rights of their fellow citizens, seeking to build up their own fame or fortune, and to gratify their own ambitious aims through pulling down the business or character of others. Or else, their hobbies are founded upon Irreligion, Skepticism, or Revenge. Such may be found in politics, among the demagogues. In commercial affairs, among the character and business wreckers. And in Religion, among the Infidels or Atheists.

Dryden gives us an apt illustration of some of these characters, when he says:

> "'Gainst form and order they their power employ,
> Nothing to build and all things to destroy,
> But far more numerous was the herd of such,
> Who think too little, and who talk too much."

THE SOCIALISTIC HOBBY.

The worst of all the bad hobbies, of the present day however, is the anarchist, who while he seeks to elevate himself, aims to destroy the entire social and political fabric of the best government ever yet known to the civilized world. This man, left to himself, or to the company of the comparatively few, who fully comprehend his destructive methods, is not so dangerous as he appears, for he is under suspicion, and

may at any time (if need be) be reached by the strong arm of justice and the law. But when he uses his hobby to persuade honest, well meaning workmen, that he is their champion, and that their real or fancied wrongs, (for there are both) can only be righted through his agency, then, just so far as he succeeds in establishing his base theories in their minds, leading them to look to his ways for relief, instead of appealing to the ballot, arbitration and other lawful means of redress, be becomes one of the most dangerous enemies of society, and of his fellow men.

"In friendship false, implacable in hate,
Resolved to ruin, or to rule the State."

EPHEMERAL HOBBIES.

Then there is another class of hobbyists familiar to us all, (mild cranks) who catch at absurd vagaries, and who are continually chasing every shadowy "Will of the Wisp" that is seen flitting across the horizon. These are not usually bad fellows, nor do they mean harm to any, in pursuing their eccentric fancies. They adopt enthusiastically a dozen different theories, without ever stopping to examine into their merit or practicability, and as one scheme after another fails, they are astonished, and wonder why, but as they usually have an unbounded supply of hope, far in excess of their brains, they quickly drop their dead hobby, for a new one, no better than the first.

"A man so various, that he seemed to be,
Not one, but all mankind's epitome,
Stiff in opinions, always in the wrong,
Was everything by starts, and nothing long."

THE UNPROFITABLE HOBBYIST.

Another harmless hobbyist occurs to me, who makes himself, or herself, worlds of trouble, without accomplishing anything in the way of general reformation, or in fact, anything else

unless it be, to make those around him as thoroughly uncomfortable as himself. These hobbyists take various shapes both in business and in the household, but more especially in the latter. I can best describe one of these characters by quoting what the poet, Southey, says of his maiden aunt, with whom he lived when a boy:

"The discomforts which Miss Tyler's passion for cleanliness produced, to herself, as well as to her little household, was truly curious. To herself indeed, it was a perpetual torment; to the servants a perpetual vexation, and so it would have been to me, if nature had not blessed me with an innate hilarity of spirit, which nothing but real affliction can ever overcome. That the better rooms might be kept clean, she took possession of the kitchen, sending the servants to one which was underground, and in this dark confined place, with a rough stone floor, and a skylight, we always took our meals and generally lived.

"The best room was never opened, but for company, except now and then upon a fine day, to be aired and dusted, if dust could be detected there. In the other parlor I was allowed sometimes to read, and we sat there sometimes in the summer, when a fire was not needed, for fire produced ashes, and ashes occasioned dust, and dust visible, or invisible, was the plague of her life. I have seen her order the tea kettle emptied and refilled, because some one had passed across the hearth while it was on the fire preparing for her breakfast. She indulged in these humors till she had formed for herself, notions of uncleanliness almost as irrational and inconvenient, as those of the Hindoos." "She had a cup once buried for six weeks, to purify it from the lips of one whom she accounted unclean; all who were not her favorites were included in that class. Never was there a more ill regulated mind than that of this haughty spinster. She herself had a theory not uncommon, that a bad temper was connected with a good understanding, and a commanding mind, and so she was on very good terms with herself."

But notwithstanding all of these exceptions, which I have mentioned, for I so regard them, I believe our hobbies are in the main, good things for us to have, and that out of some of them come much of the public thrift and development which we enjoy.

HOBBIES IN HISTORY.

Many of the great events of history had their birth in the minds of enthusiasts, some of whom to be sure, carried their hobbies to such extremes as to overshoot their mark, entangle themselves and temporarily, at least, defeat what they sought to accomplish. But good seed when thus sown, often takes deep root and results in introducing important reforms, or improvements, to be taken up later on and worked out by others, who, perhaps would never have thought of the subject except for the enthusiastic or visionary mind of the original projector.

Hobbies date back, at least, as far as the building of the tower of Babel. Cheop's great pyramid, still towering over the sands of the Egyptian desert, has been the wonder of generations for more than four thousand years, and was unquestionably one of the most stupendous of the ancient hobbies.

The Crusades in the 11th, 12th, and 13th centuries, marked another of the world's great hobbies, the zeal and magnitude of which, can hardly be comprehended after a lapse of six hundred years. And so we might go on with the enumeration of the hobbies of ancient history, if necessary, but it is not, and I think I may safely leave them with the broad assertion, that wherever history records civilization and progress, throughout the various nations of the world, there you will find more or less enthusiastic promoters of schemes for public or private advancement. Only those people, or nations, that retrograde and are on the road to decay, have no hobbies.

In our own country, we have had a great succession of hobbies, arriving with the Puritans in the Mayflower, and ever since, occurring in forms almost innumerable down to the present day. Among them we could find many illustrations, both striking and interesting, and should learn how some hobbies which seem in themselves, comparatively insignificant when first projected, often grow with such rapidity that they far outstrip public expectation, or even comprehension, and in some cases at least, mark the commencement of great social or political struggles, affecting even the welfare and life of the Nation itself.

Did that wild mob in 1773, led by twenty-five determined men, disguised as Indians, who made salt tea in Boston harbor, when they pitched overboard three cargoes of that then obnoxious article, because it represented British oppression, realize that besides defeating a hated tax law, they were at the same time laying one of the foundation stones of our great American Republic? I think they did not.

THE ABOLITION OF SLAVERY.

No more marked illustration of some of these truths can be found, than in the rise and growth of the anti-slavery, and abolition movement in our own country. What proportion of the citizens of the United States, except may be a few of their most far-seeing statesmen, realized or even dreamed at first, of the fearful magnitude of this great question, when its hobbyists, or early agitators as they were then styled, commenced their active work? Among these was: William Lloyd Garrison, who in 1829 went to Baltimore and published the "Genius of Universal Emancipation," in which he at once avowed he would "Cover with thick infamy" all those engaged in the slave trade, and in consequence was tried and convicted for libel, and cast into prison, where he lay for nearly two months. We next hear of him in Boston, in 1831, publishing the "Liberator,"

taking for his motto: "My country is the world, my countrymen are all mankind."

Wendell Phillips, who in 1835 by his outspoken sympathy with the abolition cause, brought upon himself the wrath of a pro-slavery mob, headed we are told, by some of "Boston's gentlemen of standing, and property," and narrowly escaped with his life from their outraged vengeance. Think of this, in the home of Charles Sumner, who but a few years later, had all New England at his back in support of these same principles.

Elijah P. Lovejoy, (perhaps the first political martyr in this cause) who in 1837 edited at Alton, Illinois, an anti-slavery newspaper called the "Alton Observer," and while defending it for the third time, from the attacks of a pro-slavery mob, of so called "Good citizens" who thought "The institution" should not be interfered with by speech or pen, was killed at the door of his office; and this in the very state from which only twenty-three years after, came Abraham Lincoln into the Presidency, to be instrumental in striking the shackles from 4,000,000 slaves, he himself dying a martyr for the same principles, but mourned by his own state and nation as a patriot, not second even to Washington.

And last, poor old John Brown, more enthusiastic and reckless than the rest, who struck the first blow at Harper's Ferry, in 1859, and laid down his life there to answer for it.

The Rev. S. W. Duffield, formerly of Auburn, has beautifully referred to this act, in the following lines:

"When the hills of Harper's Ferry echoed back the sudden gun,"
"And the clock of human freedom in the darkness sounded one,"
"There were some who waked, and questioned when they heard the wild alarm,"
"There were some who rose with gladness, and began in haste to arm,"
"There were some, who prayed and waited for the coming of the sun,"
"As the clock of human freedom in the darkness, sounded one."

These were but a few of the advance guard preceding other statesmen, and citizens not so radical or rash as they, but equally earnest, and effective in arousing and wielding public

opinion in this great cause, which in a little more than a quarter of a century had developed and spread through the entire land, from the great lakes to the gulf, and from ocean to ocean, arraying section against section, state against state, father against son, and brother against brother, until the whole country had espoused either one side or the other. Union or disunion was the sharply defined issue, but slavery or no slavery was the great underlying question of all. The party leaders claimed on one side that slavery was a divine right, secured to them by the constitution, and sanctioned by holy writ, while those on the other side pronounced it one of the darkest blots upon the National escutcheon of a great and so called free republic, and the scheme of the devil himself. Think then how this hobby grew, in less than thirty years into one of the great fixed principles of the north, calling to its support more than 2,600,000 loyal soldiers to fight its battles, when the government, which had adopted it was in peril. Think, also, how when victory was at last attained by the surrender of Lee's shattered and broken army at Appomattox, on the 9th of April, 1865, and the north was in the full tide of its rejoicing over the glad tidings, that only five days later a few revengeful and misguided theorists again plunged the land into deep gloom and alarm by the assassination of our good President and the attempted assassination of one of your own citizens. But let us draw the curtain over this last black act of infamy and folly, and remember that through the aid of an all-wise Providence, success rested on the side of liberty and resulted in a re united country.

THE VALUE OF HOBBIES.

Returning to my former argument, not to have some pronounced views, aims and ambitions, in the state, in the town, and in the household, is to my mind more to be regretted than it would be, to become overstocked with the article. We do

not usually think any less of our acquaintance because of his eccentricities, but if he means well, we rather admire him for his individuality. Therefore, I repeat, a well selected assortment of hobbies is a desirable acquisition for every progressive community.

To our young men I say most emphatically, select and ride your hobby if you like, only be sure and get a good one, and if possible one that will benefit your neighbor as well as yourself.

The range of personal hobbies is large, and you need not be at all confined in your choice. You may wish to be the best student, lawyer, doctor, minister, farmer, merchant, mechanic, or even the best well-digger, or your ambition may seek science, discovery, invention, or construction, or you may turn toward politics, literature, or charity, but whatever you do select, go into it with a will, exert your best energies, for if worth doing at all, it is worth doing well.

This determination will enable you to ride over obstacles which frequently arise, and often discourage the unambitious or weak-willed, tempting them to throw aside that which they seek, and turn to something else less congenial or advantageous.

Should your hobby be some public benefit or improvement, so much the more reason that it should be followed with persistence, for more people than yourself are to participate in your success.

Do not take up the spyglass of doubt, to see if any lions are standing in the path, for if you do, ten chances to one, you will discover a whole menagerie, ready to devour your pet aim.

Who has not seen people start out in life with some laudable aim, and through their own fears, or through the ridicule, or skepticism of real or would-be friends, be dissuaded from their purpose long before they had really given it sufficient trial to test its virtue. Be not of these, my young friend, but what-

ever you undertake make that your hobby, ride it with vigor, and if it be founded upon good common sense, you will be likely to come out ahead of a whole regiment of doubters.

LOCAL HOBBIES IN POLITICS.

What public hobbies have we been riding here at home, in the year that has just past? Well, too many, I imagine, for me to attempt to mention, or even to remember the half of them to-night. And yet, we may by way of illustration, recall a few of those which have occupied the attention of Auburnians in 1886.

First then, let us take the political hobby, perhaps the most persistently ridden, of any. It is usually brought out upon our streets, at least twice each year, in the Spring and Fall. It is a very active animal, and is not at all times a reliable one for the rider to mount. Those who ride, or attempt to ride it, are numerous, embracing many very respectable citizens, and and some who are not so respectable.

I regret also to say, that it is fractious, frequently becoming so unmanageable that it will throw its rider, and if it does not kill him outright, often maims him so badly, that his head is sore for a long time afterwards. Others, this capricious animal carries safely to destination; these you may see upon any day following an election; they may be known by their beaming faces, and self satisfied air; they are ready to shake hands, with all they meet, and expect to receive congratulations upon their successful ride into office. They confidently tell you that they were sure of success from the start, and perhaps quietly impart a point or two as how best to ride the animal.

If however, you chance to meet soon after, one of the unfortunate riders, who has been thrown off, he is generally pretty mad, and should he regard you as a fellow-sympathiser in his misfortune, he tells you that the whole thing was accomplished by trickery, on the part of the other side, and had he ever

suspected such treachery he would have been better prepared, or else he would not have entered the race at all. On the whole, he is inclined to think that he is not fully appreciated by his fellow citizens, and often asserts that you will never again catch him getting into such a scrape or making a martyr of himself for his party. From this state of mind however, he frequently rapidly recovers, and may often be found the next year trying the same experiment over again. Our political hobby last spring, brought in six Republican and four Democratic aldermen, who with the help of two members of the board of trustees of the Historical Society, Mayor Wheeler and City Attorney John W. O'Brien, have been struggling ever since with the intricate problem of how best to govern the city of Auburn. Most of these gentlemen have some marked individuality of their own, and each has one or more hobbies. When, therefore they ride together the road is usually found to be smooth, but when as occasionally occurs, several try to ride in different directions then there is trouble, and some one gets upset. In this connection we may also recall how only a few weeks since many of Auburn's good Republican citizens (full of political enthusiasm) went to the state capitol and there mounted one of the two strong well equipped hobbies in the senatorial contest, sure that with him they would win the prize, and again, how, when they got well under way they found the road too rough for their stronger hobby, dismounted quickly and took another, which up to that time seemed to be far behind, and with him reached the goal, happy that they had been able to come in with the winner, even if they did have to change the hobby on the route.

IN SOCIETY.

Society people in our city have ridden their brilliantly caparisoned steed of gayety, and amusement, most vigorously in 1886, in various ways, but far too numerous for special men-

tion this evening. Each however enlisting its full share of support and affording its pleasure to its many participants.

Fashion, society's adopted sister, has also had her annual hobby out for an airing, donning new things during the season, not only to amuse the people, (vex their pockets) and gratify their pride, or to minister to their real wants, but also for another purpose not always remembered, and that is to make new business for the merchant and others who can only sell their wares by offering something new to displace what they sold the year before. Thus this hobby, in our community, like others, panders to our taste, fancy, or requirements, and at the same time makes trade and profit for the vender, by her frequent, novel and arbitrary changes. I think we may set this down as the most fickle of all our hobbies.

THE NEW HIGH SCHOOL.

Another of our active local hobbies in 1886 has been the new High School building. This one has been chiefly in charge and under the guidance of our excellent Board of Education, who have been so successful in its management, that their aims are likely to be fully realized, notwithstanding the active efforts of some of their opponents to make the hobby throw them off into the mire of conflicting public opinion, through which they were travelling. Some of us to be sure, did not like the unpalatable pill of $40,000 to be added to our city debt, which accompanied this very meritorious object, even after it had been sugar-coated with the name of "certificates," but as this seemed to be the only way (under the circumstances) by which the building could be obtained, we put our objections down in the bottom of our pockets, got up behind the Board of Education and rode the hobby with them. This hobby however, encountered another and quite unexpected check after it had got well under way, in the shape of a second hobby ridden by some very good citizens which threatened to block the road for a

time at least. This one was called bad sewerage and foul surroundings, but after some hard words from the riders of each and some sensible suggestions from the Board of Health, and their expert inspector, which the Board of Education (be it to their credit) readily adopted, the riders of the second hobby, gracefully dismounted and allowed the first to go on its way rejoicing that it had so easily escaped what for a little while appeared to be an impending earthquake, which might swallow up its cellar, foundation and all. The result of all this is now a well progressed building, which when once completed will be an ornament to our city, and a much needed relief to this department of our excellent school system.

THE PUBLIC BUILDING.

Our talented Congressman, Sereno E. Payne, has ridden his favorite hobby, a new United States building (for court and post office purposes) with the substantial appropriation of $150,000 direct from the floor of the 48th congress, right up to the corner of Genesee and Green Streets, and after some balking and kicking, the animal appears now to be securely tied up to that locality. Mr. Payne's success in securing this substantial public improvement for Auburn, is, I am sure highly and gratefully appreciated, not only by the members of the Cayuga County Historical Society, but also by his fellow citizens generally.

THE OPERA HOUSE HOBBY.

Three new opera house hobbies, have been on the course during 1886, but each seems to have stumbled and fallen before it reached the goal. The first was to have been located on the vacant lot in the rear of the Bank of Auburn, the second on the site of the Genesee Rink, and the third on the Nelson lot next west of the old Baptist church building. This last one I understand, the projector does not wholly give up yet, and

although his animal appears a little lame, he still hopes to win the race. He says that all that is needed to make his hobby go through is plenty of pluck and $40,000. That he has all the pluck required, and that if he can induce other citizens to furnish the money, Auburn shall soon have a first-class hall of amusement. This by the way is a thing much needed in our city, but which most of us seem perfectly willing some other man should supply. Auburn has not in the past been a very healthful locality for this kind of hobby, several having died in early infancy, but it is sincerely to be hoped that this one or some other may have vitality enough to survive until it reaches maturity.

TEMPERANCE.

The temperance hobby has also been led out during the year, well groomed and mounted by many earnest citizens, both men and women. It has been ridden in several different directions in our city, and if it has not closed many saloons,or reformed many habitual drunkards, it has at least led to wide discussion of the subject and brought its merits more clearly before the people. To what extent its influence has been felt I do not know, but I presume it has set many young, and some older folks, to thinking of it.

THE REVIVAL HOBBY.

The hobby of religious revival has been active in our community in 1886, and has been especially guided by almost the entire body of Protestant clergy of this city, manfully assisted by many of Auburn's best citizens, and immensely progressed by the great meetings of D. L. Moody and Major Whittle. Thousands daily flocked to hear these Evangelists for three consecutive weeks, very many of whom it is safe to say, seldom if ever enter our churches. So great was the interest manifested in this movement, that it seems as though some lasting good must have been accomplished by it. Surely those who had

charge of this hobby may well feel satisfied with the interest which it enlisted, and its apparent good results.

AUBURN'S CHARITIES.

Our charitable institutions, and other philanthropic hobbies, are quite numerous for a city of our size, and in the main have been well sustained during 1886, but their call for help is continuous; they can not run alone, and some one or more of them should hold a claim upon each citizen who is a well-wisher for the public good. Objects of this character (unless more largely endowed than is the case with us) exist and thrive just in proportion to the help they receive. They do not make or accumulate money, but are continually spending it to assist the unfortunate, the ignorant, or those seeking instruction. Each particular one needs the enthusiastic aid of individual effort. They should be somebody's hobby, for unless so fostered, and helped, their ability to do their appointed work is curtailed, or dies out. Good citizens, whoever you may be, whether you have little or much, remember these institutions, and do what you can for them.

THE SALVATIONISTS' HOBBY.

The Salvation Army have ridden no new hobby in 1886, but have brought out the old animal with renewed vigor, and have paraded it through the streets in all weather; through mud, rain and sunshine, regardless of ridicule, insult or obstruction. By their steadfast adherence to their purpose they have at least commanded our respect if they have not won our sympathy for their unusual methods of calling sinners into heaven with drum and cymbals. The well balanced mind that looks dispassionately into this eccentric movement, and at the same time overlooks its ludicrous ways, will not often fail to reach the conclusion that the aims of the Salvation Army are good, and that the enthusiastic people who take part in it are by no

means doing harm in the community, notwithstanding they do make a great deal of noise. Give them your protection, gentlemen of the city government, and rest assured that the majority of good citizens will sustain you in doing it.

THE CAYUGA COUNTY HISTORICAL SOCIETY.

And last, but not least, of Auburn's hobbies, is the Cayuga County Historical society. Our hobby is to ride after, and secure ancient and modern local history, to rake among the dead leaves of the past, for facts, figures and dates interesting and valuable, and when found, to embalm them in our records as the ancient Egyptians did their mummies, so that they (I mean the facts, figures and dates, not the mummies) shall be preserved for the enlightenment of those who are to follow in the busy paths of life we are now treading. Our historical hobby has journeyed far and near in the year 1886. It has been guided by Prof. W. J. Beecher, with a sympathetic and appreciative pen through the life history of our late and beloved President, Rev. Charles Hawley, bringing to our view, new illustrations of his beautiful character and energetic career, full of rare examples for us and our children. It has traveled under the dexterous hand of D. W. Adams in the great Sullivan expedition, which in 1779 invaded what is now known as Cayuga county, and laid waste the beautiful corn-fields and Indian villages which then occupied our soil. It has been ridden through the little village of Auburn in 1814, by George Casey, one of our now oldest residents, who has himself lived to see the town grow from a few short streets with detached houses and stores and mills, into one of the most substantial and beautiful small cities in the state.

It has been down under ground with Cyrenus Wheeler, Jr., into the sewers, "ancient and modern," travelling under his practical management, back from modern Auburn in 1886, to ancient Rome, and even farther.

And then, as if disdaining the lapse of more than two thousand years, we find our hobby in the able hands of our Vice-President, B. B. Snow, who has so faithfully recorded the incidents and accidents of 1886 with a list of haps and mishaps so numerous that we are startled when we look back over the events even of a single year and see the multitude of daily occurrences, (in which we ourselves have participated) grouped together before our gaze.

APPLICATION TO OUR COMMUNITY.

And now a word in conclusion, as to the moral application of some of these remarks to our own community. Progress and development, while always somewhat dependent upon circumstance and surrounding, are nevertheless greatly aided and increased by enthusiastic individual effort; and if we want our city to thrive and prosper, we must at least do one of two things, either project and push forward enterprises ourselves, or else encourage those among us who are willing to do so, and assume the burden.

Conservatism is a wise element of character, and exercised with judgment may be said to be the balance wheel of the great engine of progress, checking or tempering down rash acts and extravagant measures. But like the brakes on a railroad train, it needs to be used with intelligence and not applied except at the proper times, to prevent accidents or to stop the cars at regular stations.

Doubt and hesitation are not always wise conservatism, and have frequently killed a meritorious project or worked as much harm, as rash but well meaning enterprise has ever done.

But, I find I have already occupied more time than I intended to do, and so will hitch my hobby here, with the parting suggestion:

If you have a good hobby, ride it; if not, look over the vast field which the world affords, and see if there is not one already saddled and waiting for you.

LIBRARY OF CONGRESS
0 014 107 806 9